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THE STRENGTH OF UNITY.

DESPITE the pronounced diversity of opinion, which exists on the subject of the war in Europe, unprejudiced and neutral intellects must recognize in the German phase of the situation a remarkable and powerful example of achievement through the power of thorough organization.

The general unity of the Teutons, politically, socially and industrially in the conduct of the great conflict, has evoked the interest of the entire world. It appears that in Germany detailed and exhaustive attention is given to the perfection of organization, and latent class feelings, factional differences, petty feuds and jealousies are promptly relegated to the background in the interests of the common good. That is organization scientifically applied.

There can be no logical doubt that the only way matters and things of value can be accomplished is through effective organization, in which the unity of purpose must be more than merely superficial or automatic in its expression. It must possess a rigid singleness of conviction in the unyielding desire to promote genuinely creative results. This, in short, has been the secret of German success—its intricate details of organization consolidating into one stupendous unit of effort.

As we contemplate Germany with her scientific and masterful perfection of organization, there is to be seen a significant and powerful lesson for America and Americans.

And particularly is this lesson applicable, in view of the constant strife and division between labor and capital, brought on very largely through the greed and selfishness of so many factions in our industrial organization. This chronic turmoil, this disturbance of the equilibrium of business, has been largely responsible for its frequent spells of demoralization as a whole.

It has been pertinently observed by conscientious leaders in American thought and progress, that opposing sides in labor controversies never seem to bear in mind that the only way to succeed is by mutual co-operation and in harmonious unity of effort. A certain blindness of foresight and vacuity of sound judgment appears to dominate the reasoning faculties of the selfish party or parties in contentions between labor and capital.

In some industries demands for increased wages and shorter hours have been repeatedly made and strikes called, in spite of the fact that various of the concerns involved in these controversies, are non-dividend paying, and fortunate to be able to operate at all.

On the other hand labor has no doubt some very just grievances in view of their contention that when business conditions were in the ascendancy, and employers were reaping handsome profits, labor's right to better compensation still remained unrecognized.

There are no small number of instances where both capital and labor are selfish and unreasonable in their respective contentions. What is needed is a strong injection of that type of unity and mutual organization which has proved so effective in Germany.

"There is involved in these disputes a woeful lack of unity and constructive organization," says a leading efficiency expert. "Neither labor nor capital can benefit. Our national prosperity is more or less crippled, building operations are restricted and industry depressed. Therefore let us realize that it is high time to 'get together' and work in harmony for the common good."

Standard Methods of Proportioning Direct Radiation and Standard Sizes of Mains*

By JAMES A. DONNELLY

(Concluded from Page 368 in the September 25th Issue.)

Comparison of Operating Conditions

The following table gives the required temperature of the radiator for various outside temperatures for a forced water circulation or a vacuum steam system; the pressure of steam or the degree of vacuum which must be carried to maintain this temperature with the steam system and the B.t.u. transmission by a standard cast iron radiator under this temperature; also the required temperature of the radiator and the transmission for a gravity circulation water system. In the last column, the proportional amount of the radiator which is to be heated for various outside weather conditions is given for a fractional air-return vacuum or vapor system.

	Forced Water or Vacuum Steam			*Gravity Water*		
Outside Temp.	of Rad. Temp.	Pressure or Vacuum of	B.t.u. per sq. ft.	Temp. of Rad.	sq. ft. B.t.u. per	Percentage Rad. Frac System
–20	240	10.25 lbs.	322	192	211	1.29
–15	233	7.25 lbs.	304	187	199	1.21
–10	225	4.25 lbs.	286	181	187	1.14
– 5	218	2.0 lbs.	268	176	176	1.07
Zero	210	1.0 in. vac.	250	170	164	1.00
5	202	5.5 in. vac.	232	162	149	.92
10	194	9.0 in. vac.	214	157	138	.86
15	186	12.5 in. vac.	196	150	126	.79
20	177	15.5 in. vac.	179	144	115	.71
25	168	18.0 in. vac.	161	137	103	.64
30	159	20.5 in. vac.	143	131	92	.57
35	150	22.5 in. vac.	125	124	80	.50
40	140	24.0 in. vac.	107	118	69	.43
45	130	25.0 in. vac.	89	110	57	.36
50	119	26.5 in. vac.	71	103	46	.29
55	108	27.5 in. vac.	54	95	34	.21
60	96	28.3 in. vac.	36	87	23	.14
65	83	28.8 in. vac.	18	79	11	.07

It will be noted that the degree of vacuum which it is necessary to carry in order to properly heat a building, increases very rapidly for a comparatively slight rise in the outside temperature. This makes it practically impossible to carry a sufficiently low pressure and temperature to prevent overheating by this method alone. It is very difficult to maintain vacuums of even fifteen to twenty inches, and almost impossible to maintain one higher than this. It has, therefore, come to be considered much better practice to control the heating effect of a radiator by heating a portion of it by means of a fractional system, rather than attempt to heat all of the radiator but reduce its temperature in relation to the outside temperature by carrying a varying vacuum within it.

It will be seen from an examination of the column of radiator temperatures for a gravity water circulation, that where a system is designed for 170 degrees water at the radiator in zero weather, that if the heater is large enough to maintain the water at 192 degrees, the radiation would then be sufficient to keep the building at 70 degrees when the outside temperature was 20 degrees below zero.

In the same way it may be noted that where a fractional vapor or vacuum system is designed for substantially atmospheric pressure in zero weather, if the boiler is large enough and the system is of such a type that it may be run at 10 pounds steam pressure, the radiation, being 29 per cent more efficient at this pressure, will suffice to heat the building to 70 degrees when the outside temperature is 20 degrees below zero.

In a moderate climate where the minimum temperature seldom drops below 10 degrees, it is quite safe to design a steam system for atmospheric pressure at about 16 degrees above zero outside temperature. This would make about ten pounds steam pressure necessary if the minimum of zero outside was ever reached. The standard hot water temperature may be shifted in the same manner. The result of these changes is shown in the following table:

	Forced Water or Vacuum Steam			*Gravity Water*	
Outside Temp.	Temp. of Rad.	Pressure or Vacuum of	B.t.u. per sq. ft.	Temp. of Rad.	B.t.u. per sq. ft.
Zero	240	10.25 lbs.	322	192	211
5	231	6.5 lbs.	299	185	196
10	221	3.0 lbs.	276	178	181
15	211	1.0 in. vac.	253	171	166
20	201	5.5 in. vac.	230	163	151
25	191	10.0 in. vac.	207	155	136
30	180	14.0 in. vac.	185	147	121
35	168	18.0 in. vac.	161	139	105.5
40	156	21.0 in. vac.	138	130	90
45	144	23.0 in. vac.	115	121	75
50	131	24.5 in. vac.	92	112	60
55	117	26.0 in. vac.	69	102	45
60	103	28.0 in. vac.	46	92	30
65	87	28.5 in. vac.	23	81	15

The steam boiler or hot water heater should not, however, be reduced in size when the amount of radiation is reduced in this manner. The size of the boiler should be proportioned from the B.t.u. losses of the building from the minimum outside temperature to 70 degrees inside.

The following table gives the proportionate radiation required to heat a building from zero outside to 70 degrees inside, with varying maximum temperatures of the radiators; also the proportionate size of the boiler or heater for the corresponding maximum temperatures of the radiators:

Temp. of Radiator	Transmission	Proportionate Surface Required	Proportionate Boiler Load Steam	Prop. Load Hot Water
240	322	.78	1.29	....
230	297	.84	1.19	....
220	273	.92	1.09	....
210	250	1.00	1.00	1.52
200	227	1.10	....	1.38
190	206	1.21	....	1.26
180	185	1.35	....	1.13
170	164	1.52	....	1.00
160	145	1.72	....	.88
150	126	1.99	....	.77

Standard Sizes of Steam Mains.

The size of steam mains depends upon so many factors, that a complete discussion of the subject would require the presentation of preliminary matter covering almost all parts of a steam heating system. See papers by the author, published in the Society Transactions, Vol. 12, 1906, and Vol. 13, 1907.

*Paper read at the Semi-Annual Meeting of the American Society of Heating and Ventilating Engineers, held in Atlantic City, N. J., September 16 and 17, 1915.

However, when the steam is to be distributed at a comparatively low pressure to a number of buildings or through the basement of a building of large size, the amount of radiation that may be supplied for any drop not given in the table may be found as follows:

As the drop in pressure varies as the square of the velocity, one-half the velocity, or one-half the radiation to be supplied, equals one-quarter the drop; twice the velocity, or twice the radiation to be supplied, equals four times the drop, etc.

This is illustrated by the following table of the capacities of a one-inch pipe for various drops in pressure:

Drop	Square Root of	Equals	Multiply by	Equals Capacity
⅛ oz.	.125	.353	40	14.1
¼ oz.	.25	.5	40	20.
½ oz.	.5	.7	40	28.
¾ oz.	.75	.866	40	34.8
1 oz.	1.	1.	40	40.
1¼ oz.	1.25	1.118	40	44.7
1½ oz.	1.5	1.225	40	49.
1¾ oz.	1.75	1.322	40	52.88
2 oz.	2.	1.414	40	56.56

For lengths of run other than 100 feet, multiply the drop in pressure by the ratio of the given run to 100.

Where the steam is to be distributed at high pressure and used through reducing valves at the buildings, the table of the Unwin formula as it has been divided for convenient figuring by W. L. Durand may be used. Column 1 gives the factor for various drops in pressure from one ounce to three pounds per 100 foot run. Column 2, the factor for the pipe size from one inch to 16 inches. Column 3, the factor for various densities of steam from atmosphere to 200 pounds gauge pressure. Therefore, if

Table of Factors for the Unwin Formula. Nominal Sizes of Pipe.

Column One		*Column Two*		*Column Three*
Drop in Press.	$87\sqrt{\frac{P}{100}}$	Dia. Pipe	$\sqrt{\frac{d^5}{1+\frac{3.6}{d}}}$	Steam Press. lb. per sq. in.	$\sqrt{D}$
1. oz.	2.17	1 in.	.466	0	.193
.1 lb.	2.75	1¼ in.	.887	2	.207
.2 lbs.	3.98	1½ in.	1.49	5	.223
.3 lbs.	4.76	2 in.	3.38	10	.248
.4 lbs.	5.50	2½ in.	6.32	15	.270
.5 lbs.	6.15	3 in.	10.5	20	.290
.6 lbs.	6.73	3½ in.	16.1	30	.326
.7 lbs.	7.27	4 in.	23.	40	.358
.8 lbs.	7.78	4½ in.	32.	50	.388
.9 lbs.	8.26	5 in.	43.	60	.415
1. lbs.	8.70	6 in.	70.	75	.452
1.25 lbs.	9.74	7 in.	105.	100	.508
1.5 lbs.	10.6	8 in.	150.	125	.557
1.75 lbs.	11.5	9 in.	205.	150	.603
2. lbs.	12.3	10 in.	271.	175	.645
2.5 lbs.	13.7	12 in.	437.	200	.684
3. lbs.	15.	14 in.	654.	...	....
		16 in.	925.	...	....

the proper factor is selected from each column, the product of the three will give the pounds of steam that will be delivered per minute. This amount multiplied by 200 will give the square feet of direct radiation that may be supplied by the steam.

Example: What is the weight of steam that will be delivered per minute through a 4-inch pipe with steam at 30 lb. and a drop in pressure of 5 lbs. for a run of 500 feet?

Solution: The drop as given is equal to 1 lb. per 100 feet. From Column 1, the factor opposite 1 lb. drop, 8.7, is obtained. From Column 2, opposite 4-inch pipe, 23. From Column 3, opposite 30 lb. pressure, .326. The product of these three is 66.65 lb. This, multiplied by 60, equals 3,999 lb. per hour. Dividing by .3 lb. per sq. ft. (which is a safe factor per square foot of direct radiation, including allowance for the condensing capacity of the distributing mains within the buildings) this gives 13,330 sq. ft. of radiation that may be supplied.

It is well to have a table of the comparative carrying capacity of pipes as figured from the Unwin formula, so that after one size is figured for a certain condition, the capacity of all other sizes may be very quickly obtained by it. The following table gives this information where the nominal sizes are used as a basis for the calculation, as well as the comparative carrying capacity of standard, extra heavy and double extra heavy pipe.

TABLE OF THE COMPARATIVE CARRYING CAPACITY OF PIPES
UNWIN FORMULA

Nominal Diam.	C.C.C.	Standard Diam.	C.C.C.	Ex. Heavy Diam.	C.C.C.	Dbl. Ex. Hy. Diam.	C.C.C.
1	1.	1.048	1.15	.951	.865	.587	.212
1¼	1.9	1.380	2.53	1.272	2.	.885	.702
1½	3.21	1.611	3.94	1.494	3.17	1.008	1.275
2	7.25	2.067	8.07	1.933	6.98	1.491	3.15
2½	13.6	2.468	13.1	2.315	10.9	1.755	5.01
3	22.5	3.067	25.4	2.892	20.3	2.284	10.5
3½	34.5	3.548	35.7	3.358	30.8	2.716	17.1
4	49.2	4.026	50.7	3.818	43.9	3.136	25.5
4½	68.7	4.508	69.	4.280	59.9	3.564	36.4
5	91.4	5.045	93.6	4.813	82.4	4.063	52.
6	150.	6.065	154.	5.751	133.	4.875	85.4
7	226.	7.023	228.	6.625	195.	5.875	141.
8	322.	7.982	321.	7.625	291.	6.875	215.
9	440.	8.937	433.	8.625	393.	....	.....
10	582.	10.019	584.	9.750	544.	....	.....
12	938.	12.	938.	11.750	888.	....	.....
14	1400.	14.	1400.	.....	.....	....	.....
16	1980.	16.	1980.	.....	.....	....	.....

Note.—It will be seen from an examination of the above table that the difference in the capacity of pipes, as figured on the nominal and actual diameters, is very little, except in the sizes of two-inch and below; where they are somewhat higher when figured on the actual diameters. The larger sizes are usually cut off with a knife cutter, which does not reduce the internal diameter, but it is customary to cut off the sizes below two-inch with a wheel cutter, which always reduces the diameter. Although all pipes that are cut with a wheel cutter should be afterward reamed so that the original diameter is restored this is very often neglected entirely or else very insufficiently done. It is, therefore, considered better practice to use the table of nominal sizes in calculating the carrying capacity of wrought pipes.

Standard Sizes of Radiator Connections and Valves.

The impartial and disinterested observation of radiator manufacturers upon the comparative working of radiators with different sizes of connections, has led to the very wide adoption of standard sizes of radiator connections for one and two-pipe gravity systems. They are given in the following table, as well as sizes for vapor and vacuum systems that are believed to represent the best of present practice.

The following table also shows the maximum amount of radiation that can be supplied or drained by the given sizes of pipe, for various systems of steam circulation. The run-outs and the valves are of the same size, with the exception of the steam pipe and valve for vapor and vacuum systems. In these it is customary to make the inlet valves smaller than the pipe connection; the reduction in size from the standard sizes of steam piping to the smaller size of the valve is to be made as close to the radiator as possible.

Standard Sizes of Return Mains.

Return mains may be divided into two classes; wet returns, or those that are below the water line, and dry returns, or those that are above the water line. Wet re-

turns carry only the water of condensation; dry returns carry the condensation and also enough steam to supply the radiation from them.

Good engineering practice has determined that the velocity of flow through both kinds of returns should not cause a higher pressure drop by friction than that recommended for standard sizes of steam mains; namely, one ounce to the one hundred feet in straight pipe.

The comparative flow of water and steam with the same

	Supply				Return		
	One Pipe Steam	Two Pipe Steam	Vapor and Vacuum Steam Con.	Vapor and Vacuum Valve	Two Pipe Return	Vapor Return	Vacuum Return
½ in.	...	...	...	20	...	40	80
¾ in.	...	20	20	40	40	100	200
1 in.	24	40	40	80	80	200	400
1¼ in.	60	80	80	160	160	400	750
1½ in.	100	160	160	320	320	...	...
2 in.	200	320	320	...	...	...	...

drop in pressure from friction is proportionate to the square root of the density. As water at 212 degrees is about 1,600 times as heavy as steam at atmospheric pressure, a wet return pipe will drain about forty times as much radiation as the same pipe will supply, with the same pressure drop from friction.

In figuring the proper rating for pipes as dry returns, it is necessary to assume how much surface they will have in order to know how much steam they will be required to carry in order to supply the heat radiated by them.

If 1,640 cubic feet of steam are fed into a radiator and 1,600 cubic feet are condensed and passed into the return, as well as 40 cubic feet of uncondensed steam, the size of the pipe required to carry either the water or the steam will be the same, since the steam is 40 times the volume of the water and flows at 40 times the velocity with the same pressure loss from friction.

From this it will be seen that the size of the pipe required to pass 2½ per cent of the amount of steam condensed by the radiator, is equal to that required by the water of condensation from the radiator (neglecting the advantage due to difference in elevation as regards the condensation) and the following formula is very readily deduced:

$$r \text{ equals } R \frac{40}{1+4N} \text{ in which,}$$

r equals the rating of a pipe as a wet or dry return.
R equals the steam main rating of the same size pipe.
N equals percentage of surface radiation in exposed return surface.

If it is assumed that the radiating effect of the return piping is usually about 10 per cent that of the radiation, then the return radiator connections and the return risers may be laid out from the 10 per cent column and the return mains farthest from the source of supply from the 7½ per cent column. The assumed percentage may gradually be reduced until finally when the return drops below the water line, it may be sized from the wet return column. If the returns are to be covered, due allowance may be made, and the sizes reduced accordingly.

Ready for Him.

"Tomorrow, gentlemen," said the professor in a lecture on taking notes, "I will bring in my cards and show you my card system."

Voice—O. K., Doc. Fetch some chips, and we'll have a regular party.—Pennsylvania Punch Bowl.

Eastern Plumber Plans Novel Advertising Campaign for His Business.

Much has been said and written on ways and means of using the daily newspaper as a medium for promoting business in a community. Master plumbers and steamfitters, along with other retailers, have used their share of advertising space in the effort to extend and develop their business possibilities.

Brevity and directness of appeal to the prospective buyer has been dwelt upon, and the importance of this in the preparation of advertising copy can never be overestimated. New methods of catching and impressing the consumer's mind are evolved from time to time, and in some instances prove very effective indeed, for it is a well known fact in the psychology of advertising that the introduction of the new and extraordinary in printed salesmanship—a term often applied to advertising—is frequently productive of profitable results.

For example, an enterprising master plumber and fitter in one of the eastern states wrote the editor of "Domestic Engineering," that he was planning a rather new departure in fostering public sentiment in favor of better plumbing in the homes of his town. It appears that "Domestic Engineering's" reprints of plumbing articles by United States Senator Lewis and Governor Dunne of Illinois figure strongly in a local fall advertising campaign, which he contemplates running in his home newspaper. He writes in part:

"Kindly send me reprints of articles on the health value of good plumbing, which were written for 'Domestic Engineering,' by Senator Lewis and Governor Dunne. The editor of my local paper has promised that he will print these in consecutive editions of the paper. On the day he publishes the article by Governor Dunne I will insert an advertisement of my business, the sum and substance of which will run about as follows:

"'Governor Dunne of Illinois Declares Bad Plumbing is a danger to the Public Health. See Article by Him in This Newspaper. How is the Plumbing in Your Home? Call — Plumbing & Heating Co., Phone 152. Inspection and Advice Free.'"

Similar advertising copy will be used by this plumber who is an ardent supporter of publicity, when the editor prints the article by United States Senator Lewis, with the latter's name featuring the advertisement.

Here is a method of appeal to the public mind which ought to produce good results in business getting. Here is a form of newspaper advertising for plumbers which we believe will really make the public *read the advertisement, and think.* Master plumbers and fitters, who wish to try this form of advertising in their local newspapers, are invited to write the editor of "Domestic Engineering" for reprints of plumbing articles by prominent public men, which we will gladly furnish, supplemented by other suggestions, which we believe will prove helpful in publicity for plumbers.

H. C. Worrell, Mt. Holly, N. J., has the contract covering the plumbing in a new high school being erected in Burlington, N. J.

A Sanitary Engineer's Views on Housing

By Thos. J. Claffy, Assistant Chief of Sanitary Bureau, Chicago,
and President of the American Society of Sanitary Engineering

Thos. J. Claffy, of Chicago.

A VERY important function of public health work and one that is quite generally misunderstood in its relation to physical and mental well-being is housing or the provision and maintenance of proper living quarters and surroundings. Much more study and attention is being directed to that subject than was formerly given to the whole field of public health service in the days of our fathers. The location of the house or home is the first consideration. Then comes the house itself; with it may be included light, ventilation, water supply and drainage. Finally the moral phase must be considered.

The first thing to consider in choosing a building site is drainage. If it is a rural district, it is necessary to choose a hill side or the summit of a knoll in order that storm and waste water may be rapidly drained away from the house. This is necessary not only to provide against dampness in floors and walls, but to protect wells and cisterns and to prevent the formation of puddles of stagnant water where mosquitoes may breed.

High ground water is also to be avoided in building sites and this can only be accomplished by keeping to high ground or providing an expensive system of underground drainage. High ground water means damp floors and walls and a contaminated well or cistern water supply. Some people do build on swamp land or at the bottom of a deep valley and live through it. Many more people die young by reason of such environment.

Swamp land is high ground water land, and also malaria land. It affords a home for the mosquito, the venomous snake and other pests and practically precludes the possibility of a good water supply.

Drainage is one of the most necessary requirements, whether it be a rural or urban building site that is chosen. Natural drainage by creek or river is readily used to advantage, provided raw sewage is not discharged therein. To avoid this some practical method of sewage treatment is necessary, the most satisfactory being the septic or settling tank and filter bed system.

In urban communities where public sewers are available the drainage question is solved. The home builder needs but connect his house drains and be sure that such drains and connections are made in a proper and workmanlike manner.

The location of the town or city dwelling is governed by the water supply and sewerage systems and is thus solved automatically. The individual who chooses a cheap lot where such systems are not provided assumes a very grave health risk.

The second consideration, the house itself, is indeed most important. The choice of building materials is governed by location and circumstances. Where lumber is relatively cheap lumber is used. It is a mistake to use such material for foundations and cellar floors. The reasons most commonly thought of are its porosity and consequent rotting from dampness. The one great reason why it should not be used for cellar or ground floors is that it is not rat or vermin-proof.

Concrete properly waterproofed is the ideal medium-priced material for such purposes. Hard burned tiles may also be used. Brick is a good building material above ground; it should never be used under ground unless it is properly protected by a water proof coating.

The time will undoubtedly come, when all houses will be built with tile floors in kitchens, bath and toilet rooms, pantries, laundries, etc., and with tile walls at least five feet high. There is no other way to guard against vermin. Plaster walls and ceilings should be specified rather than wood. The latter is likely to open at the joints, crack or warp in a very short time, and thus provide homes for innumerable pests. Hard, smooth wall surfaces are readily cleaned. Wood does not make such a surface.

Light and Ventilation.

Light and ventilation are twin sisters of importance in good housing. The exposure to sunlight must be considered so that every room may have direct sunlight as long as may be possible every day. Ventilation must be by means of windows in all possible cases. In rural districts this is easily accomplished. In urban districts it is a serious and vital question. Restricted building lots render much more difficult the proper lighting of all rooms. It is for this reason that laws and ordinances are enacted which specify in detail certain requirements, as to area of lot to be covered, sizes of courts, yards, shafts and widths of passages between building and lot line. These requirements also provide for the proper circulation of air and make it possible to ventilate every room by opening of windows. The latter are also specificed as to size, their ratio to floor area, and height from floor or distance from ceiling.

A common fault found in the cheaper grade of tenement houses and residences is to place a window in the middle of a bedroom wall directly opposite the door of such a room. This causes short circuit of air currents across the middle of a room, leaving stagnant air pockets at each end.

A Pure Water Supply.

Water supply is a difficult problem in unsewered urban districts where privies are used, and in many rural districts. Where there is danger of contamination of well or cistern water by seepage from privies, barn yards, pig sties, manufacturing plants, or from house slops or wastes, deep wells properly cased should be sunk to a good water supply or the water should be filtered and boiled.

City water supply systems are usually safe; if there is any doubt the water should be boiled.

Careful Construction of House Drains.

House drains should be built with much care and tested to ascertain if they are tight. The leaking house drain is a nuisance and a constant source of danger to the health of those who must live above it. The most suitable material

for house drains, under conditions which prevail in the average house, is cast iron. It will not readily break at the joints when laid in filled or made ground and it cannot be readily broken into by the handy man and left with openings which either flood the cellar with sewage or the house with sewer air. Tile properly glazed and sound and with joints well yarned and grouted with good live cement mortar should be used where acid wastes are encountered, for the reason that such material is practically acid proof, but tile drain pipes should be laid so that the settling of the ground will not disturb the joints, and when tested it should be subjected to at least a 10-foot head of water. A tile drain properly laid to meet such requirements will cost more than one of cast iron under like conditions.

In order to provide for a dry basement and foundation walls drain tiles should be laid with open joints around the outside wall of the building, and should be drained to a sump from which the water is pumped or drained to an outfall which will not endanger the system with backwater. In cities along rivers, subjected to high water in springtime, flooding is experienced and provision must be made in the sewer system to protect the lower parts of the town against damage. In the extreme low lands which are under water during such flood periods the city usually provides pumping facilities and in that way safeguards the individual householder against nuisance and damage by back-water in his drains. It is the man close to the line, who suffers most, and for that reason he must provide back-water valves, which will work automatically and prevent flooding during high water. Automatic devices of that character are not all fool-proof and hence cannot be depended upon to perform their functions at all times and under all conditions. For that reason a quick-opening gate valve is recommended on every drain line in order to close it against flood waters from public sewers.

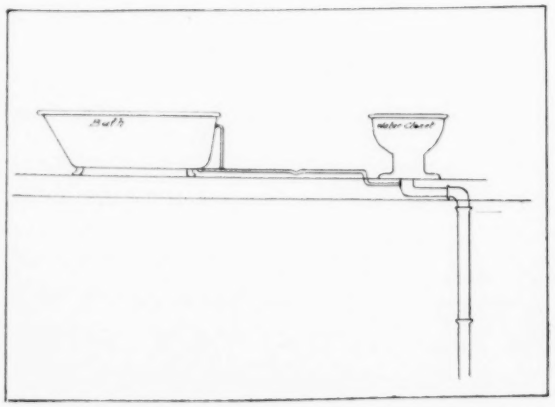
The house trap, sometimes called the intercepting trap, on drains, which is designed to protect them from the entrance of sewer air or sewer gas, has been a matter of investigation and study for about five years by the Royal Sanitary Institute of Great Britain and has been officially condemned in its report on this question, issued about two years ago. It was considered that the Institute had said the last word concerning house traps and that no good reason could be shown for their existence. The Canadian Institute of Sanitary Engineers, in their first convention in 1913, discussed the subject at length and proved that the house trap had a function to perform in a cold climate, where for example the thermometer registered 40 degrees Fahr. below zero for several weeks at a time. Its sole use under such conditions was to prevent drafts of cold air from the main sewer, through the house drain and plumbing system, and consequent freezing of the sewers and drains.

The size of house drains is usually governed by the roof area from the standpoint of storm water. In books on engineering tables are given for computing sizes.

The Importance of Good Plumbing.

No other phase of the housing question has encountered greater changes than the plumbing. It was the custom not more than 20 years ago to provide a cheap sink with an "S" trap with 1¼-inch lead waste to a tile drain for the average house. The water closet, if there was one, was a cheap hopper in the yard. This was considered sufficient for the demands of any one not a millionaire, and surely was sufficient at that time owing to the fact that houses were not heated as at the present time. It was not long, however, until hot and cold water was regularly supplied at the sink. Then it became necessary to install bath tubs and lavatories of the cheaper grades and water closets, which were a source of much revenue to the plumber.

With the advent of the plumbing ordinance, about 1891, came a great change in this respect. The plumber was no longer allowed to install "S" traps with lead waste pipes stringing down through several floors, nor soil pipes of light weight and with joints run without the mark of the calking tool. It is needless to say that light soil pipe installed in such a manner was not gas or water tight. The laborer's cottage today is equipped with modern plumbing conveniences that would have been the envy of kings less than a generation ago. This is



Home Made Plumbing Without Traps.—Showing How Not to Do It.

due, in great part, to the business acumen of manufacturers and wide-awake plumbers. It is needless to state that the best is the cheapest in plumbing as in other things. For that reason the home-builder should see that the plumbing fixtures are of a type which will not only have a neat appearance but are so designed and installed as to provide the greatest ease in maintenance. In the apartment house the same rule should apply, for the reason that tenants are less careful of fixtures than is the home-owner, and unless the water closet is of a type which exposes a minimum of fouling space to a maximum of water surface the result will be a filthy closet bowl fouling the air of the bath room, which should by all means be maintained in a perfectly sanitary condition.

In cities which have ordinances governing the installation of plumbing no great attention need be given soil, drain, waste or vent pipes, but in rural districts or in villages without such ordinances the home-builder should see that such pipes are the same as those required in cities, such as those mentioned, that the workmanship is first class, that all such pipes are tested and proved to be tight, and that all connections between fixtures and soil or waste pipes are made in a workmanlike manner and have withstood a rigid test.

(To be continued.)

Andrew Lang once invited a friend to dinner when he was staying in Marlow's Road, Earl's Court, a street away at the end of that long Cromwell Road, which seems to go on forever. The guest was not very sure how to get there, so Lang explained:

"Walk right along Cromwell Road," he said, "till you drop dead and my house is just opposite!"—Chicago Daily News.

Sales Talks—A Lone Fixture*

By WILLIAM ROBERT MARSHALL

I CALLED on a merchant the other day, who does a general hardware and plumbing business. As I went into his store I sensed "something" peculiar about the general layout or appearance of the place that attracted my attention.

At first I was not explicitly conscious of just in what manner it was different, but as my mind absorbed what my eyes had taken up instantly I was aware that it was a long, long row of lawn mowers down the center aisle of the store.

I met the proprietor and had a lengthy visit with him, but the longer I talked with him the more I wondered about the lawn mowers.

Maybe lawn mowers were a "hobby" with him; maybe some overanxious salesman had loaded him away beyond his requirements.

Anyway, to my way of seeing and reasoning things, he had altogether *too many* lawn mowers in proportion to the balance of his stock.

Unable to conceal my interest in the long, long row of lawn mowers indefinitely, I finally remarked apparently quite casually: "You carry a very large stock of lawn mowers, don't you?"

"Large!" he exclaimed, glancing down the row, "No, that isn't many; I have sold as many more as you see there this year." And this was early in the season.

"You must have *some* lawn mower business," I ventured.

"Yes," he replied, reminiscently, "I have, and that's a funny story." And without waiting for any prompting from me, he continued.

"One day about two years ago a hardware salesmen, who calls on me regularly, suggested that I ought to carry lawn mowers in stock."

"I couldn't see it that way; my business is not, strictly speaking, a retail hardware one, and, again, as you see, I am two blocks away from the main business street, and I didn't think I could sell lawn mowers at all, under any circumstances."

"But," and he smiled as he shrugged his shoulders, "he finally persuaded me to buy one as a sample and try it out."

"When we got that lawn mower we put it on the floor, in the aisle up near the door, and forgot it, except when we had to move it to sweep, or some one asked us the price of it."

"We finally put it in the front show window, primarily to get it out of the way and accidentally sell it if we could."

"And then," he remarked laughingly, "our troubles began. People would come in and ask the price of that lawn

"Is this the only one you have?" he asked. When I answered it was the only one left and we were making a cost price on it to close them out, he gave the poor, lone lawn mower a suspicious glance and said: "Well, it isn't just exactly what I wanted," and departed.

*Copyrighted 1915, by William Robert Marshall.

mower in the window, and we all being anxious to get rid of it, would haul it out and show it off, point out its good features, and then confidentially make a cost price on it, and end up by putting it back in the window."

"If we did that once we must have gone through that performance fifty times, but the lone lawn mower still clung to us like a bad debt."

"That lawn mower," he continued, as he lighted the cigar I had silently offered, "finally got my 'goat' and incidentally set me to thinking."

"Do you know what the matter was?" he inquired.

I did, but I wanted to hear a pet argument of my own corroborated, so I lied.

"No," I answered. "What was it?"

"Well," he began, knowingly, 'I came to the conclusion that people were suspicious of that lawn mower; they would come in, ask the price of that lawn mower, which we always trotted out for their inspection, glance around, apparently looking for others, which they couldn't see, and then go back to the lawn mower, examine it critically while we praised it as the best lawn mower ever made, but all ended up by saying: 'Is this the only one you have?'"

"When we told them it was the only one left and we were making a cost price on it to close them out they gave the poor, lone lawn mower a suspicious glance and said: 'Well, it isn't just exactly what I wanted,' and departed."

"So I finally came to the conclusion that people really wanted lawn mowers, or they wouldn't be so interested in our lone, measly little sample. And our location didn't seem to make so much difference, as I had thought it did, so I got mad and made up my mind that we would have some lawn mowers, small ones, medium ones, and large ones, so that all could have exactly what they wanted. Besides I wasn't going to be stuck by any one lone, old lawn mower."

"In other words," I remarked, "your 'goat' began to bleat."

"Exactly," he replied, seriously.

"So," he continued, "I decided to buy some lawn mowers."

"The salesman who got that order" (his eyes twinkled) "I believe, thought I was crazy."

"So did every one else," he added, "and I wasn't altogether sure on the subject myself, but it worked."

"This is the second year for the lawn mowers, and our business in them is still increasing."

I wasn't sure but that he had missed the fine point of salesmanship the lesson taught, and I couldn't resist the temptation of exploiting my opinion on the point raised, so I remarked: "Yes, it *most always* works out just as you have told me."

"Remember!" I cautioned him, "I said *most always;* some don't have any goat."

"What do you mean?" he asked haughtily.

I could detect a note of resentment in his question, and I knew he felt disappointed that I wasn't terribly surprised and awed by his ingenuity.

"I mean just this," I replied: "Suppose, for instance, that you wanted to buy a suit of clothes, and in passing along the street you noticed a suit in the window which pleased your fancy and you went in to inquire the price, and they had to take the suit out of the window to show it to you, and upon close examination you decided it didn't look as good to you as you thought it did, and you looked around, and remarked: 'Have you anything else on the same idea?' and you were told: 'No, they had only a few suits left, and as they were closing them out they were making a low price on that suit,' would you buy your suit there, or go to some place that had an assortment and a good stock, and looked as if they would be in business the next time you wanted another?"

"Well, that's different," he started.

"No, that isn't the question," I insisted. *"Would you buy your suit in the first store?*

"No, I wouldn't," he admitted grouchedly. "In the first place, I wouldn't——"

"That's the answer," I interrupted, 'to your lawn mower proposition, and it applies to your tailor also."

And I left him.

There isn't anything isolated or exceptional about the lawn mowers; take a look around your place of business, maybe your trouble is a lone, measly one fixture proposition, *and your "goat" is dead.*

OLEAN, N. Y., REVISES ITS PLUMBING CODE.

The city of Olean, N. Y., has recently amended its plumbing code by the addition of the following sections relative to the elimination of privy vaults, etc. The provisions of the new ordinances are as follows:

Section 1. No privy vaults, cesspools or similar receptacles used to receive fecal matter, urine or sewage shall be hereafter used upon any premises in the city of Olean which adjoin any street in which there is a public sewer any part of which said premises is used as a dwelling, factory, shop or mercantile establishment, and all such privy vaults, cesspools and similar receptacles shall be cleaned in a sanitary manner, filled up and abandoned.

Section 2. Whenever a public sewer is hereafter constructed in any street no such privy vault, cesspool or similar receptacles, hereinbefore described shall be used upon any premises adjoining such street, any part of which is used for the purposes in Section 1 of this regulation after thirty days from the completion of such public sewer, and all such privy vaults, cesspools, and similar receptacles shall be cleaned, filled and abandoned within thirty days after the completion of such sewer.

Section 3. Any person, who shall use any such privy vault, cesspool or similar receptacle, or permit the same to be used upon premises owned or occupied by him in violation of this regulation, shall be liable to a penalty of $10 for each offense. Any person being the owner or occupant of any premises who shall fail or neglect to fill up and abandon any such privy vault, cesspool or similar receptacle as provided by this regulation for a period of ten days after notice so to do to be given by the inspector of the Board of Health, shall be liable to a penalty of $5 for each and every day thereafter during which the same remains not filled up and abandoned.

Liquid Measure.

London Householder—Not many people away holiday-making in war time, I suppose, milkman?

"Well, mum, you'd be surprised; at least five gallons of my customers were away last week-end."—Punch.

Was Not Qualified.

"I've been reading an article on electricity, John," said the wife, as she laid down a copy of a technical magazine which she had been perusing, "and it appears before long we'll be able to get pretty nearly everything we want just by touching a button."

"It will never pay here," growled the husband. "You would never be able to get anything in that way."

"Why not, John?"

"Because nothing on earth would ever make you touch a button. Look at my shirt!"—"Philadelphia Ledger."

Credit Systems for Plumbers and Fitters

By WESLEY A. FINK

Wesley A. Fink.

HERE and there in the retail world we occasionally find a man or firm who seems to be able to handle successfully a "cash" business, but they are few and far between in comparison with those who do business by extending credit as well as selling for cash, for it seems to take a man with a rare degree of energy and business ability to do an exclusively cash business.

There are really very few doing a strictly cash business, the majority using this simply as a pretext to refuse credit to those whom they do not know or do not regard as worthy of credit, and being very glad to extend credit to anyone known to be good.

While there are mercantile agencies and branches throughout the country ready to give the manufacturer and jobber every assistance possible to determine who is worthy of credit, and how much, the retail merchant, the master plumber and the mechanic in other lines have to struggle along as best they can, relying entirely for their credit reports upon what they or their clerks may have heard, or know, in regard to the applicant, unless the latter is a stranger, when he is "sized up" by appearances, and the plumber trusts to luck that he will get his money.

The various local associations of master plumbers, if properly supported, should furnish the best means for establishing a credit bureau for the benefit of their members. The success will depend upon the hearty co-operation of the master plumbers, and, if they will give this and follow closely the ratings and corrections (which represent the experience of other merchants with the party), a credit business can be successfully carried on, with the losses reduced to a minimum.

They must eliminate petty jealousies and the feeling that a man is an enemy simply because he is a competitor. They are brothers in a common cause and can accomplish infinitely more, particularly in the credit line, by mutual assistance than by trying to put the other man out of business. They have only to look at the labor unions to realize what can be accomplished by co-operation.

In starting a credit bureau, the first thing is to make it a condition that every member furnish a list of his customers, good and bad, with the amount he has found them good for, the way they have paid him; if delinquent, the amount and for how long. It is well for the manager of the credit bureau to get this data in person from the members, as there are a number of cases where the merchant will make statements having an important bearing on the credit of the customer, which would not be brought out in any other way.

Some people pay one man for a cause, such as having a relative in the store, but would not make desirable credit customers for another firm, or credit might be extended by a merchant, who, although he was being paid promptly, would not recommend the party for credit with a fellow merchant, and such facts only come out by personal talks.

By the time the records are completed of how a person pays, you will find many curious facts staring you in the face: A man, who pays his house rent promptly, will not pay his grocer and butcher, and vice versa; and you will find two merchants in the same line making entirely different reports on the same party, which will call for an investigation to bring out the facts, so you will be in a position to make an intelligent report when called upon.

As a rule, with all these facts before you, it is an easy matter to strike a safe average as to how a party pays his accounts, but where there is too great a conflict in the reports you have on hand, it is best to rate him in the key that calls for a special report, then on inquiry lay before the merchant the facts you possess, and let him use his judgment. As to why a member should, or what right he has to give the above information—if the customer has paid his bills promptly, it is due him that the merchant plumber make a good report, no matter where he wishes to trade, and if he does not pay promptly, then it is due your fellow member to protect him from such people in return for his protection of your interests.

Having gotten complete lists from your subscribers to the Credit Bureau service, you are now ready to get them in condensed form, showing the record of each man, and for this the best results can be obtained by use of a card system. In Fig. 1 is illustrated a form that will meet most requirements.

Name: John Doe.
Occupation: Carpenter.
Address: 1721 Spring Street.

Date.	Final Rating.	Firm Ratings.				
		8	10	14	15	17
1915	A1	A1	A1	A1	A	

Fig. 1.

In the first column is placed the date the information is given, in the second the final rating, and in the third the various reports received and the key number representing the firm giving it, for convenience sake, and to prevent the name of any firm appearing and being seen by an outsider, who might see some of the cards.

Should you wish to make any data other than the simple key letter, simply mark in the rating column, "Over," and place whatever you wish on the back, or, should this be too small, paste a sheet of paper on the back of the card.

You are now ready to compile the information in book form, which can be done on a Neostyle, or printed and bound in book form for distribution among your members.

Use a key along the following lines to represent your ratings:

A1—Prompt pay.
A—Good, but may be somewhat slow.
B—Very slow.
C—Not desirable as a credit customer.
X—Inquire for special report.
Z—Change of rating.

In the "X" reports will be embraced people in regard to whom your information is insufficient to warrant a positive rating; in regard to whom your reports are very conflicting, and people against whom there are reported

to you "unsatisfied liabilities." It is better to place the latter under this rating, for some are paying up all the time, which fact the merchants are prone to forget to report, so that if you have them rated flatly, as having "unsatisfied liabilities," you are apt to do them an injustice, and in some states, too, there is a law which would prevent this. Your rating to ask for a special report protects the member, for he, noticing it, would not make the sale without consulting you; then you can investigate the party's standing and ascertain if he has settled his obligations, and advise accordingly.

You now have your information complete and up to date, and in keeping it so lies the value of your credit bureau, and this requires close, conscientious work.

The credit manager of the association should call on the members as often as possible, getting reports from them about those who are getting delinquent to the point where it would be dangerous for another member to take up their custom, for with some this is the time when they change to another merchant, having reached the limit of their credit with the first one; so if you have an inquiry from a master plumber in regard to a party who, according to your records, has been trading at another place, it is well to make an inquiry at the former place to see if his account has been settled in full. It will accomplish a great deal if the members report to the association as soon as a customer quits and fails to settle up his account. You will find, too, that some have been temporarily delinquent, and are paid up, so are entitled to a change in their rating. All this information, as well as the names of the new people, should be sent out in a weekly or monthly supplement.

Your first trouble will doubtless come up when a new party makes application for credit, and the member neglects to get information as to where he is from or where he dealt before, and yet expects a report just the same.

You will find the most trouble from this cause from the anxiety and eagerness of the plumber to secure new customers, without securing this information first, and having landed an order, it places the plumber in a delicate position. For he, in a natural desire to build up trade, wants the business, but feels it is too late to ask for information now that could easily have been obtained in the first place, and at the same time he hates to fill the order, not knowing anything at all in regard to the party. They generally end up by asking the association for a report, with nothing at all to start from, and sometimes the latter is able to learn enough to enable him to feel safe in trying the new account, anyway.

In the matter of new parties in a neighborhood, the member should secure for the association the late address of the party; it is then an easier matter to get a proper report. When a member reports a new customer, it should be followed up for a number of months by inquiry of the member as to whether the account is being paid satisfactorily. If the party pays according to the report, it is safe in rating him.

No member should open an account with an unknown party without first getting a report. Often a dishonest party will open a new account, pay it very promptly for awhile, and then use this merchant as a reference and a means to swindle others, using the first as a "scapegoat," so to speak.

Collection reports will come to the credit manager naturally, and from them he will derive a great deal of credit information, and he should be prepared to take care of them, and to be able to give reports promptly.

The master plumber can use the credit-rating book furnished him by the association, as the jobber uses the credit-rating book of the larger mercantile agencies, and, in addition, can request a special report, which will enable him to learn just how the party stands at that time, the information in the credit-rating book possibly being several months old. Having such information at hand, the plumber would be enabled in most cases to pass on applications for credit without the need of a personal interview, which is very desirable, especially concerning woman customers, who dread being interrogated, and, in addition, by not being questioned, the inference is drawn that they are well and favorably known, so feel kindly towards the plumbing establishment.

Even if the association does not have a record of the party, if he has lived in the place for any length of time, enough information can be gotten occasionally in a little while to enable the plumber to risk the first small charge, or turn down the account as undesirable.

To make a success of the credit bureau of the association, all the members must give their hearty co-operation, but for all they give, and the slight expense per member they are put to, to maintain the credit bureau, they will reap a many-fold reward.

The manager of the credit bureau of the association must be a person in whom the members have confidence, for with this information much could be done to abuse their confidence. In localities not large enough for the bureau to be a business in itself, it can be carried on, say, by a public stenographer or a young attorney with not enough practice to occupy all his time, and who can earn, in addition to the income from the credit information, fees in collections and suits resulting therefrom. If an attorney was selected for this work, all of the local collections could be sent to him and be registered in the association's bureau, and all the members notified on the monthly list that accounts for collection have been filed against certain people.

(To be continued)

WANTS MORE PRESSURE ON HOT WATER SUPPLY LINE.

Editor "Domestic Engineering": I am submitting a sketch of a hot water supply system (Fig. 1) from which we can get only a very little pressure on the hot water line.

Can you suggest any way by which we may get a better pressure?

Perrysburg, O. J. J. K.

We do not know how correspondent is going to get more pressure on this system, unless he raises the attic tank to a higher level. If there is a third floor, we would suggest changing the location of the tank to that floor.

We note that correspondent makes mention of only the hot water piping. This leads us to believe that something besides low pressure is the cause of complaint, for the pressure on the cold water pipe is apparently no higher than that on the hot water.

We believe that the system is air-bound, this trouble occurring in the high part of the hot water line, above

the boiler. This condition often arises under a low pressure, such as that which must exist in this case.

Air-lock is easily overcome, however, by taking a pipe of small size from the high point, and running same up to and over the attic tank. Such a pipe is shown by the dotted line in accompanying illustration, Fig. 1. All air will be vented through this pipe, and we believe it will greatly improve the working of the system.

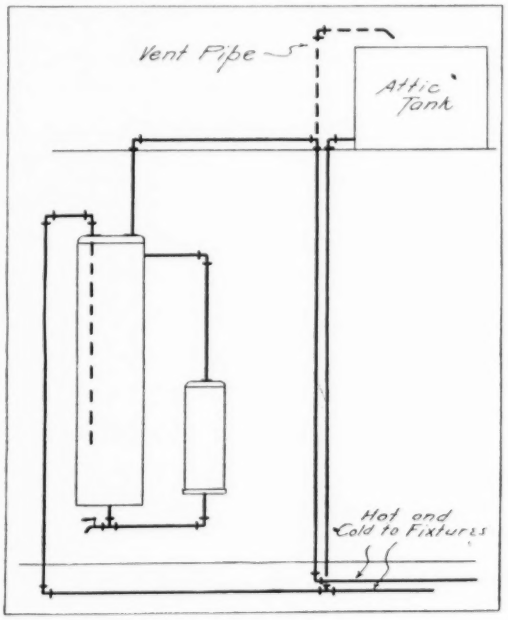


Fig. 1.

LOOP AND FALSE WATER LINE CAUSE TROUBLE.

Editor "Domestic Engineering":—We would like your advice on a heating plant with which we have experienced considerable trouble and are enclosing a rough sketch of job which is an up-to-date tiled pool. The system works O. K. in every respect except the loop, which we have used to establish a false water line, for we prefer a wet return. The loop did the work we intended, the balance pipe preventing the water in the returns from siphoning over the loop and flooding the boiler, but live steam feeding through return of radiator down through balance pipe caused pounding, as the water of condensation surged over loop into dry return to boiler. Each time the water went over, it would empty the loop for a distance of 6 ft. from top, the noise would then cease till it filled to top and then the pounding would start again. We figured the cause was the water surging up in balance pipe and meeting the live steam feeding from radiator return. We then disconnected the balance pipe from radiator return and ran it through wall outside of building. This cured the pounding and the job works perfectly but we believe we lose a little water from the system, and as the system is equipped with vacuum air valves we figure we lose the benefit we should derive from them, and in addition a mudhole has formed where the water leaks outside, which is an eyesore. Our customer is not aware that everything is not satisfactory, but we would like to make the job right, as we have a first-class reputation and want to keep it so. We once tried a false water line on a job without any balance pipe on loop but the water siphoned from returns and flooded boiler.

Jersey City, N. J. N. M.

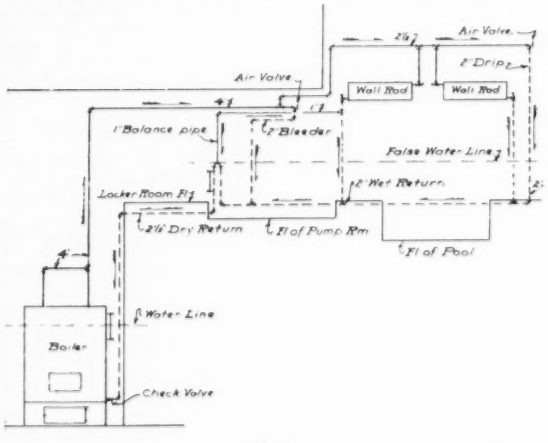


Fig. 1.

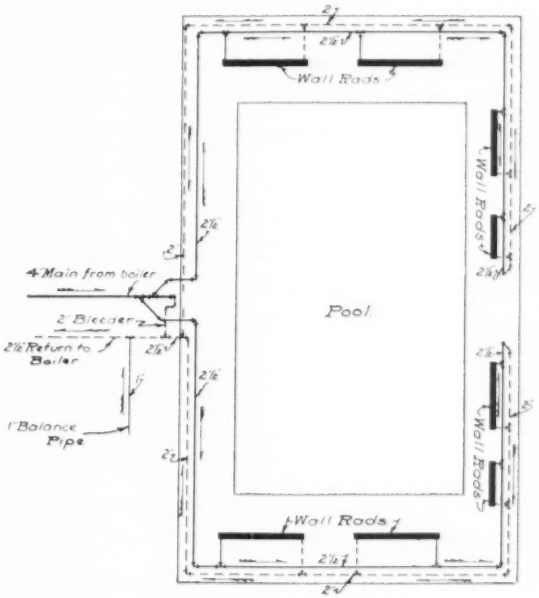


Fig. 2.

We have read with interest the above communication and are pleased to note the effort on the part of correspondent to remedy any seeming defect in the installation referred to even though the job seems satisfactory to the owners.

With reference to the false water line, in establishing a false water line without a balance or equalizing pipe certain conditions must be considered and it sometimes is not safe to make a loop of this kind without the use of an equalizing or balance pipe.

Fig. 1 shows an elevation of the job according to the sketch submitted by correspondent, and we note that the balance pipe is connected into the return from one of the wall radiators. This no doubt is causing the trouble experienced. This balance pipe should connect directly

into the 4-inch main, or stated differently, should connect the 4-inch main directly with the top of the loop. In making this loop of course one fitting will be a tee fitting and one an elbow, the tee fitting being used for connecting the balance pipe. On the elbow at the top of the loop an automatic air valve should be placed.

From the facts stated in the above letter and from the character of the work, as shown by sketches submitted, correspondent's entire trouble has been from unequal pressure and from siphonage, and with the balance pipe properly connected and with the loop seal vented by an automatic air valve, the cause of the trouble experienced will be removed, and there will be no further difficulty.

Fig. 2 shows the sketch submitted by correspondent indicating the method of supplying the wall radiators around the swimming pool and the method of connecting to them. It is rather hard to show the position of the vertical loop seal on a plan view as indicated by Fig. 2, but when considered in connection with the elevation plan, Fig. 1, the position of the seal is plainly noted.

INFORMATION ABOUT AIR CHANGES FOR VARIOUS BUILDINGS.

Editor "Domestic Engineering":—I have occasion very often to design heating systems for residences, churches and business blocks and I would like to ask if you can give me any information relative to the number of air changes to figure on for the following?

Residences:—Vestibules, parlor, dining room, kitchen, bath rooms and upper halls.

Churches:—Auditorium, class rooms, dining rooms in basement, toilets in basement, vestibules, gymnasiums and kitchens.

Business blocks:—Stores ordinary, offices and toilets.

Schools:—Class rooms, assembly rooms, gymnasiums, toilets and corridors.

In all of the above no provision is provided for ventilation other than opening of windows and the heating is to be by direct radiation only.

Cleveland, Ohio. F. H. V.

To answer the above communication adequately would require more space than we can give to such answer. Briefly, the amount of fresh air required or the number of changes of air per hour for any room or building will depend upon the extent to which the air of the room or building is vitiated or contaminated.

In figuring air changes it should be borne in mind that sufficient changes must be made to provide for proper ventilation and by ventilation is meant the changing or renewing of the air within a room or building in order that it shall remain sufficiently pure for breathing purposes.

In a living room, office, school, or similar building the air is contaminated by the breath of, and the exhalations from the bodies of the inhabitants of the room or building and also, when coal oil or gas is used for illuminating, by the carbonic acid gas resulting from the consuming of the oxygen necessary to produce combustion. In certain factories, laboratories, etc., the air may be contaminated by smoke or by the fumes of poisonous gases.

In residences sparsely occupied an air change in living and sleeping rooms two or three times hourly is sufficient. When used for gatherings, social functions, entertainments, etc., the air should be changed at least five times hourly, and under some conditions an air change of six or seven times hourly is not too frequent. This also applies to kitchens, bath rooms and toilets.

In business blocks stores require a change of air four or five times hourly and offices about the same, except in a large working office where a considerable number of clerks are employed, and in an office of this kind a fresh air supply equaling 30 cubic feet per minute per person is not too much.

In schools, class and assembly rooms 30 cubic feet per minute per person. Toilets, six or seven changes hourly; gymnasiums, six changes hourly.

In general it is much better practice to figure on the introduction of a definite amount of fresh air per person than it is to figure the number of air changes per hour. Attention is called to one of the last paragraphs in the above communication, which states that no provision is made for ventilation other than opening the windows, and that heating is to be by direct radiation only.

We think that it would be well to inform our correspondent that it is absolutely impossible to provide adequate ventilation when direct radiation only is used, and the windows are opened as means of admitting fresh air. Practically the only effect of this method is to lose a large number of heat units to the outside atmosphere. In all buildings where it is desired to thoroughly furnish ventilation, it is necessary that ventilating flues be provided, the inlets to the same being at or near the floor line of the room, and that sufficient heat be furnished in each flue to expand the air and cause an upward current which will suck the foul air from the room, the fresh air to be admitted over indirect radiation located in the basement and through side wall or floor registers placed in or along an inner wall of the room.

In some of the best ventilated buildings, particularly schools, the air for ventilation is tempered by passing through heating coils, and by a fan is forced through various ducts to registers or flues leading to each room. The glass exposure of the room and the outside wall exposure is taken care of by direct heating coils or radiators placed along the outside walls of the room.

We advise our correspondent to obtain one or several of the standard publications on the subject of ventilation and to make a study of the methods recommended by the authors.

CHANGE IN PLAN OF HEATING SYSTEM.

Editor "Domestic Engineering":—Herewith you will find a sketch, Fig. 1, of a heating system as originally laid out. Looking over the building I find that the basement floor in the room, marked A, is 32 inches higher than the boiler, kitchen and dining room floors, and in the other part of the building the floor in the room marked B, is 7 inches higher than in the boiler, kitchen and dining rooms, so I am now planning to run the steam pipe as indicated on my other sketch, Fig. 2. The ceiling in all the back rooms is 3 ft. and 1 inch higher than the ceiling in the kitchen and dining room. Do you think that it will be safe for me to go ahead making this change in this heating system?

Waupaca, Wis. A. B. F.

An examination of the sketches submitted by correspondent in connection with the above letter indicates a job somewhat peculiar to handle, and yet very simple in the general method of construction. We like correspondent's changes from the original plans, as shown by Fig. 2, very much. The original plan, Fig. 1, shows a very much longer main than is necessary for this work, and we note

that on one side of the building one 3-inch main is reduced to 2½-inch, and care should be taken that this reduction is made by using a fitting tapped eccentric, in order that

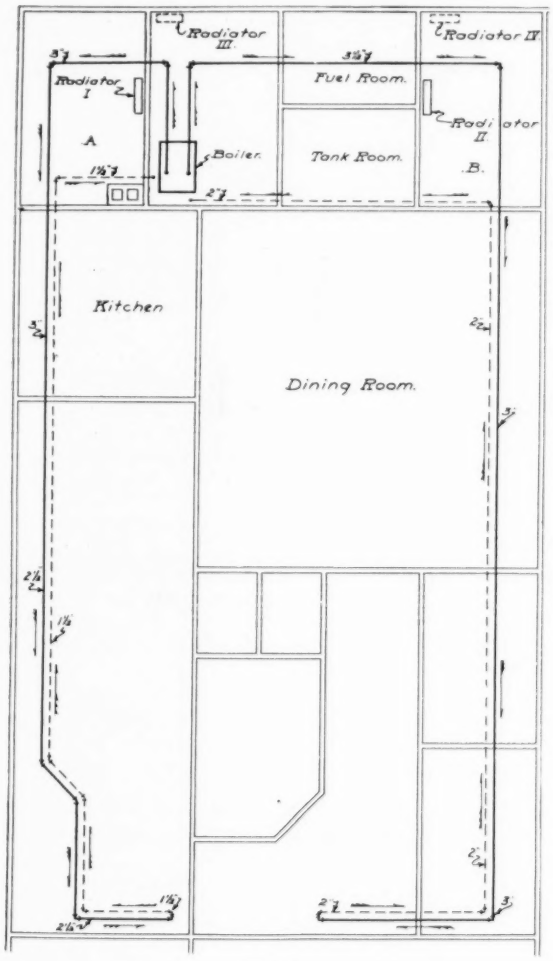


Fig. 1.

there will be a continuous flow of the condensation through the main.

We are undecided, from correspondent's sketch, whether

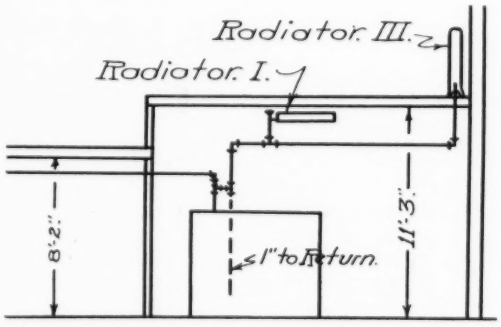


Fig. 3.

the return piping from each main is wet or dry, but we think that dry returns must be used, as indicated, and in this event automatic air valves should be placed on the same where drop is made at the boiler or into a wet return.

Fig. 2 shows a detail of the main and connections at

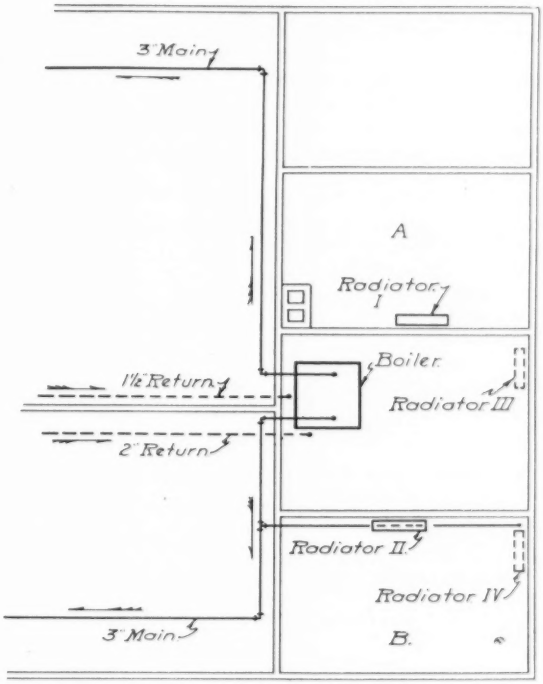


Fig. 2.

the boiler as correspondent would change them, and as before stated this change seems to be an improvement over the original. Figs. 3 and 4 are copies of sketches submitted, which show the method of running the branches and supplying the radiators at the rear of the building, as suggested by correspondent's letter, and are self-explanatory.

The method of supplying the wall radiators is good, but

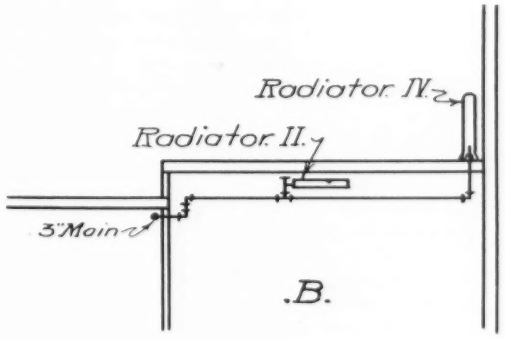


Fig. 4.

we would suggest that the branch be run a little to one side of the radiator, in order that a swing joint may be used in making the connection, in order to properly provide for expansion.

It has occurred to us to suggest to correspondent that it might make a much neater job to join the outlets of the boiler into a large header, and from this header to take a main of sufficient size, probably 4 inches, in the form of a loop around the basement. From the plan

submitted by Fig. 1 it would seem that in order to get a proper pitch of each main and each return, the end of the return would be fully as low as the end of a loop making a circuit of the basement, and in our judgment this would make not only a neater appearing job but one which would be fully as efficient as that shown. There is less friction in the larger piping, and the main itself would then carry all the condensation flowing in the same direction as the steam, until a point near the boiler was reached, when it could be reduced to probably 2½-inch, an automatic air valve being used on the elbow and a drop made with 2½-inch into the return of the boiler.

Without knowing more of the conditions of the work this is offered as a suggestion as a means to simplify the method of piping.

SUGGESTS REASON FOR SUPPLY TANK'S COLLAPSE.

Editor "Domestic Engineering":—We note your reply to C. J. A., of Northfield, Minn., in your issue of September 18th, in reference to collapse of supply tank. We believe your version of the matter is correct, that the overflow became clogged, but cannot agree with you that there could be no collapse from drawing the contents of the tank from the bottom supply.

We personally have seen a one-barrel gasoline tank collapse by simply drawing gasoline from the faucet when the filling cap was screwed down so tight that no air could enter. You are probably aware that by drawing a small amount of the contents of a tank of this kind with closed vent produces a pressure on the outside of the tank of 15 pounds per square inch, and very few tanks that are made up for this purpose will withstand such pressure. This we believe will explain the collapse of the tank referred to.

Sioux City, Iowa. H. L. Wood.

THE VENTILATION OF THE LARGEST HOTEL IN EUROPE.

The Regent Palace Hotel in London, England, which was recently thrown open to the public, is the largest hotel in Europe, and its system of ventilation has several points of interest which are worthy of notice, says "The Sanitary Record" of London. It owes its inception and working details to A. H. Barker, B. A., B. Sc., Wh. Sc., the well-known professor of heating and ventilating at London University.

The ventilation of the principal reception rooms is on what is known as the "balanced system." Fresh cooled air is supplied by two large general fans. Each principal room has its own independent extract fan. Some idea of the immense power of the ventilating plant may be gathered from the statement that the fans alone supply enough fresh air in one hour to fill St. Paul's Cathedral and Wetsminster Abbey together. Fresh air is thus forced in while vitiated air is simultaneously withdrawn from the room in any desired quantity. A highly desirable but elaborate system is adopted to avoid the production of draughts.

For ventilation of the main reception rooms fresh air is admitted into a large chamber where the heavier dust and other impurities are allowed to settle. The air next passes through one of the largest air washers in the world, where it is thoroughly cleansed of dust and other impurities, cooled and humidified.

In the hot days of summer provision is made for cooling the air through a considerable range of refrigeration, cold water or ice, as required. In cold weather it is suitably tempered by passing over a battery of warm pipes.

From the air washer it is led through two centrifugal fans, and driven through underground ducts to all parts of the building. The ducts are so arranged that either fan can be employed for the supply to the whole building, thus minimizing the risk of heated air producing that "stuffy" feeling which is so unpleasant and hurtful.

There are two ducts for each room, one for warm and the other for cold air. Warmed or cooled air can be admitted in any proportion to any of the principal rooms independently of one another, so that one room can be supplied with cold air and an adjacent one simultaneously with warm air.

Control of this elaborate system is concentrated in a "cabin" in the heart of the building, where recording instruments indicate to the engineer on duty the volume of air being supplied at any time to each of the receptive rooms, together with its temperature. By pulling a lever he is able to regulate the quantity or the temperature of the air passing along any of the ducts. And the pipes and ducts are so fixed as to be invisible to the visitor, and yet easily getatable in the event of repairs or renewals being necessary.

The kitchen, which is of unusual size and height, is provided with a false ceiling with a ventilating space over the entire area. The ceiling is perforated with holes in removable panels, so arranged that they can be periodically taken down for cleaning purposes with the minimum of inconvenience and loss of time.

From this false ceiling space the air is drawn along a large duct to a fan, similar to those employed in the ventilation of a mine, fixed on the mezzanine floor. This fan is of sufficient power to change the whole of the air in the kitchen and surrounding rooms every 1½ minutes. The air is delivered into a large duct which conducts it to the top of the building. The smell of cooking is thus entirely avoided.

Each bedroom is separately ventilated by a trunk carrying vitiated air to the top of the building. Fresh air is introduced at the will of the occupant, either from the warmed corridor or from adjacent areas. The lavatories, baths and water-closets throughout the building are similarly ventilated by extraction fans, which withdraw the air to the roof.

A large room is provided for airing all the linen used in the hotel. This is fed by a continuous stream of warm fresh air supplied by a "Sirocco" fan, driven by a 5 horse-power motor, and steam heater, so that all the linen required throughout the building is thoroughly aired before being used.

It may be added in conclusion that the power for driving the ventilating fans is entirely electrical and is easily controlled and regulated.

Ever Since.

Brown—The facial features plainly indicate character and disposition. In selecting your wife, were you governed by her chin?

Jones—No, but I have been ever since we were married. —Stray Stories.

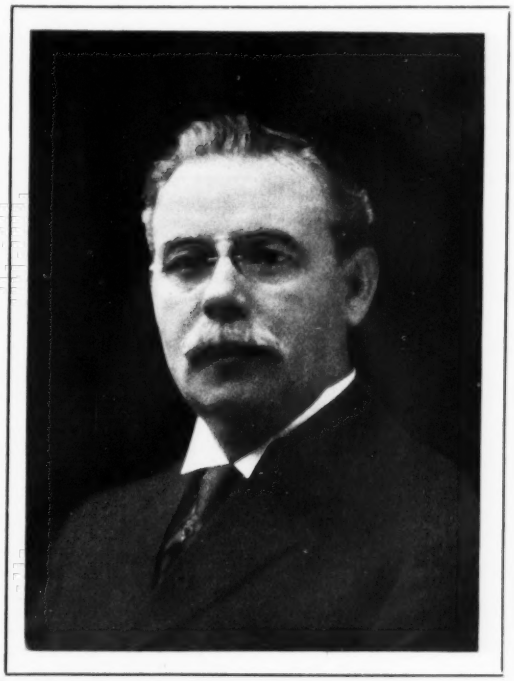
Accurate Information.

"We had about the centurion in our Bible class today. What's a centurion, pop?"

"A centurion, my son, is a man who has lived to be a hundred years old. I'm glad you take after me and like to know things."—Baltimore American.

Sidelights on Men in the Trade

He Never Outgrew His First Ambition



MOST men at one time or another during their youth have cherished the loftiest ideals of success and personal achievement, but how few are permitted the gratification of having nursed these adolescent aspirations from the air-castle stage to the realm of realization.

How often it transpires that the fellow with an early desire to become a plumber was hustled off to a preparatory seminary and later pumped full of an assortment of high-sounding theories at college which completely unnerved him for the practical work he aspired to, finally finding himself entirely outside the sphere of his early dreams. "All educated up and no place to go," as it were.

Those same men may become bald, corpulent and gray or otherwise outlive their youth, but seldom are their boyhood aspirations entirely eradicated.

One of the few men, who have experienced the rare pleasure attending the successful development of their youthful dreams, is John J. Delany, president of Coyne & Delany Co., of Brooklyn, N. Y. His ambition was expressed in terms of mechanical effort. He vowed that he'd be a mechanic and a recognized factor in the mechanical sphere. So forestalling any possible foolish parental sidetracking, young Delany at the age of twelve, proceeded to put in practical operation his ideas and ideals.

He well knew that foolish delay is always a formidable stumbling block in the path of any big developing enterprise; besides his irons were all hot and twelve was as good an age as any at which to strike.

His first step (he only needed three by the way) was to attack the business end of a lathe with the aid of a packing case to make up for his juvenile deficiency in stature. Luckily the lathe was in the shops of Morrison & Smith, then makers of plumbing supplies in New York, otherwise Delany's later skill and ingenuity might have been lost to the sanitary field. However, this particular part of the program was solely a providential detail. Primarily Delany didn't particularly care what or whose lathe he tackled so long as it was a good, healthy lathe, capable of imparting the elementary principles of mechanical law.

At any rate, he remained with it long enough to outgrow the packing case and acquire an expertness in brass finishing. Then with a well-founded determination to find out all there was to know about the game he had elected to pursue, he stepped into the plant of Mayor, Lane & Co., where he assimilated a few more details of mechanics as applied to the plumbing brass industry. In fact, he assimilated so much, that in 1879 at the comparatively youthful age of twenty-three he took his third and final step, entering business on his own account with T. F. Coyne as a partner. In his new venture he introduced the first right and left thread as applied to a tank valve, and in the years that followed he has given to the world of sanitary engineering many other evidences of his inventive ingenuity.

The Coyne & Delany business has grown so fast that six times since their modest beginning on State Street, Brooklyn, they have been compelled to seek larger quarters for manufacturing purposes. The concern's latest move brought it to its present location at 828-834 Kent Avenue.

Mr. Delany has ceased active participation in the business, turning over the active operation of affairs to his sons. He would have continued indefinitely, but so far as he and his original purpose were concerned, the job was complete, and besides he had another job to tackle. Briefly, this new one is nothing more nor less than a desire to speed over every auto road in the country. He'll do it, too; for lately the hobby for autoing, which he acquired during spare moments in his original program, has developed into a wild enthusiasm. The East has been pretty well covered by him. All that remains is the unknown, beyond the Alleghenies, and this Mr. Delany purposes to tackle presently. As a starter he's going to motor to the exposition at 'Frisco and back this year. In fact, he may be on his way while this biography is rushing into print.

John J. is a thoroughbred New Yorker. He was born in that metropolis in 1856, receiving his education within its borders. Even in the pursuit of his pleasures and fortunes, he has always confined his activities to his native city, except, perhaps, in his new role of autoist.

Ashtabula, Ohio.—J. J. Farrell has secured the contract for the installation of a heating plant in the new high school building on Division Street. Consideration, $22,489.

Washington, Iowa.—The Wilson Plumbing & Heating Co., of this city, has secured the contract for the plumbing and heating in the new county home near Tipton, Iowa. Consideration, $6,108.

Dallas, Texas.—The C. Wallace Plumbing Co. has been awarded the contract for the plumbing in the new building for men at the county farm. Consideration, $1,344. Kinnison Bros., of this city, secured the contract for the heating of this building at $950.

Many Jails in This Country Declared Insanitary

Reformers, Sanitary Engineers and Doctors Condemn Insanitary Conditions in Jails

THE sanitary conditions of jails in many parts of the United States are a crime to American civilization, according to sanitary engineers, prison reformers, health officials, master plumbers and others.

The plumbing and ventilating facilities in a majority of jails in Illinois have recently been severely condemned by famed writers and others interested in constructive prison development.

Henry M. Hyde, a well known civic reform author, declares that the county jails of the United States are in a deplorable insanitary state. He has found this true in a considerable number of cities, and recently he turned his attention to a study of conditions in the jails of cities and towns of Illinois.

In jails coming under his observation throughout the United States, the odors, sometimes discernable half a block away, proclaim the needs of sewage disposal. Some reports of insanitary conditions in a central city in Illinois, the like of which is to be found in many cities in the country, follow herewith:

"Three of the jails of the twenty-four have shower baths. In one the shower had been out of order for several months and not even a laundry tub had been given the men. The sheriff said he did not know whether or not the plumber had been asked to examine the showers. Six jails have no sewage drains, and many of them are poorly ventilated. Some have no toilet facilities, except leaky and uncovered tin pails."

Speaking of the typical county jails in the United States, James A. Leonard, late president of the American Prison Association, declared: "A great number of jails are absolutely insanitary and positively disease-breeding, a survival of the days when prisons were built to be dark dungeons, and when prisoners were regarded as wild beasts who must be denied all humane treatment. In some jails three men are locked together in each cell for twelve hours out of twenty-four, breathing the same air over and over again, there being no provision for anything approaching a ventilating system."

Mr. Ball Deplores Conditions.

Charles B. Ball, C. E., chief of the Bureau of Sanitation, Chicago, who is an authority on housing reform, took occasion sometime ago to investigate conditions in the police stations of this city. After the completion of his observation, he referred to the Chicago jails as the "medieval dungeons of Chicago." Since the age of nineteen Mr. Ball has taken an interest in the construction of jails, having at that age had supervision of the installation of iron work in jails in various parts of the country. Later he designed plumbing for no small number of jails. He was the designer of the first improved cell closets, equipped with large angle flanges. It was during Dr. Young's administration as health commissioner of Chicago, some two years ago, that Mr. Ball made his exhaustive study of the plumbing, heating and ventilating aspects in the jails of Chicago. In a majority of instances, he found almost unbelievable conditions, such as grossly deficient toilet facilities, bad or no ventilation, and the general plumbing features entirely inadequate.

"The remedy for these insanitary conditions," said Mr. Ball recently, is publicity, education of the public to the needs not only of the jails, but of the tenement districts throughout the United States. For unhealthfulness and demoralizing effects, insanitation is one of the worst evils which beset our modern civilization. State and local legislation is what is of urgent importance in remedying the evils of insanitation in buildings of all kinds. The master plumbers and others interested in sanitation and ventilation can do much, acting in unison, to urge the establishment of reform legislation along sanitary lines.

"In an investigation of sanitary conditions in thirty-six jails of Chicago, Dr. Young and I found a state of affairs which we thought had passed out of existence with the close of the dark, middle ages. Among our many astounding discoveries, we came across the case of a man who had been shut up for forty-eight hours in a narrow wooden cell with the temperature fifty degrees Fahrenheit. This was the treatment accorded a man, who according to the law is 'presumed innocent until proven guilty.' We found so many unwholesome examples of jail housing, that one would be safe in recommending the remodeling of practically all the jails of the city. Nearly all should have modern plumbing, heating and ventilating facilities."

Model Sanitary Installation in Jail Cell.

Dr. Hill's Investigation.

Dr. E. Vernon Hill, of the Division of Ventilation, Chicago, and president of the Chicago Commission on Ventilation, spoke recently of the need of legislation and a thorough arousing of public sentiment in favor of better ventilation in jails throughout the country.

"I have devoted much time to this subject of bad ventilation in jails," said Dr. Hill. "In Chicago jails I have secured samples of air and cultures of bacteria in thirty-six police stations. These were taken from walls,

floors and fixtures. The results indicated a very serious condition, tending to the dissemination of disease. A radical step toward improvement of these conditions is certainly needed."

Better Plumbing Advocated.

At conventions of the trade in various states the question of insanitary jails has occasionally been referred to. The problem of securing legislation, state and local, toward the remodeling of jails along modern sanitary lines, is one that the trade must consider in the fight for public recognition of the necessity of practical sanitary reform.

President Charles F. Taffe, of the Chicago Master Plumbers' Association, in commenting on the investigations of sanitary authorities into the conditions prevailing in jails throughout the country, declared that he was heartily in accord with any movement which would bring municipal and state authorities to a full realization of the needs of the hour in the reconstruction of jails along the most approved lines of sanitation.

"From what I read, and from what I have occasionally seen," said Mr. Taffe, "the plumbing in the average jail is far from satisfactory, and it is indeed high time that better facilities should be introduced to replace the old and unwholesome ones."

SPRINGFIELD MASTER PLUMBERS OUTING.

About seventy-five members of the Master Plumbers' Association, of Springfield, Mass., participated in the annual clam bake and outing of the association, held at Agawam, near Springfield, on Saturday, September 18th. Plumbers from many of the western Massachusetts cities were among the invited guests and State President John B. Feehan of Lynn, was one of several speakers. Sports, including running and jumping events and a ball game between the married men and the single men, were features of the program. The trip to and from the grove was made by automobiles. It was the association's third annual "bake" and those who attended claimed that it was the best yet.

Hastings, Neb.—Rutherford Bros. have been awarded the contract for plumbing and heating the Methodist Church in this city.

Salem, Ore.—Theodore M. Barr, of this city, has been awarded the contract for plumbing in the new $20,000 high school building at Oregon City.

Savanna, Ill.—J. E. Mullen & Son have been awarded the contract to install 10,000 feet of gas pipe for the Peoples Gas & Electric Co., in this city.

Pella, Ia.—The Globe Plumbing & Heating Co., of this city, has secured the plumbing and heating contracts covering the new residence of Floyd Gambell.

Nashville, Tenn.—The T. J. Mooney Co. has secured the contract for plumbing, heating and ventilating of the new addition to the Davidson County Asylum.

Wabasha, Minn.—Moser & Passe have been awarded the contract for the installation of a steam heating system in the Farmers' & Merchants' Bank Building.

Benld, Ill.—McPherson Bros. have been awarded the contract for the heating and plumbing in the new high school building in this town. Consideration, $1,715.

Syracuse, N. Y.—Burns Bros., of this city, have been awarded the contract for plumbing two new schools at Binghamton. Consideration, $9,843.

Burlington, Wis.—The Reineman Hardware Co., of this city, has secured the contract for the plumbing in the new high school building being built at Union Grove.

Savanna, Ill.—The Savanna Plumbing & Heating Co. has secured the contract to install plumbing and heating in the Chicago Avenue grade school in this city. Consideration, $8,000.

Dickinson, N. D.—J. W. Mollog has been awarded the contract for the plumbing and heating in the new German-Bohemian State Bank, in this town. The contract amounts to $1,732.

Syracuse, N. Y.—The Edward Joy Co., of this city, has secured the contract for the installation of a plumbing system in the new power house at Sing Sing Prison. Consideration, $2,259.

Louisville, Ky.—G. M. Thomas has been awarded the contract for the installation of a steam heating plant in the Trinity Methodist Episcopal Church. This plant is to replace a hot air furnace system.

Scranton, Pa.—P. F. & M. T. Howley have been awarded the contract for the installation of an up-to-date plumbing system in the new Scranton Life Building, in this city. The contract amounts to $13,641.

Muscatine, Ia.—John Redmond, of 209 East Third Street, has been awarded the contract to install a steam heating plant to heat a block of business buildings in this city. Work will start at once. Consideration, $5,000.

Oskaloosa, Ia.—L. A. Suiter, of this city, has been awarded the contract to install plumbing and heating systems in a public school to be erected at Lacey, Ia. 3,500 feet of radiation will be installed. Consideration $3,500.

Wheeling, W. Va.—The Schofield-Cowl Co., of this city, has been awarded the contract for reconstructing the heating system at the county jail. The present system was installed twenty-five years ago and is worn out.

Frederick Barnd.

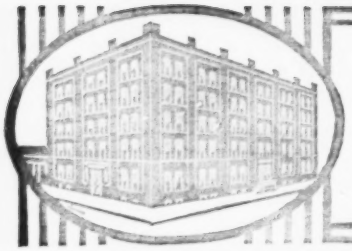
Frederick Barnd, senior member of the plumbing firm of Barnd & Geiger, in Buffalo, N. Y., died at his home in that city on Monday, September 13th, according to a formal announcement just issued by that firm.

James Gardiner.

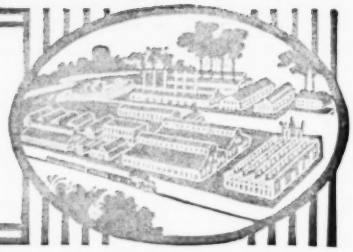
James Gardiner, president of the Gardiner Metal Co., of Chicago, died at his home in this city, on Wednesday, September 22nd. Mr. Gardiner before starting in business on his own account was for many years connected with E. W. Blatchford & Co., of Chicago, and had a large circle of friends in the plumbing trade.

John B. Stickler, Jr.

John B. Stickler, Jr., of the John B. Stickler Co., which conducts a plumbing business at 614 West Walnut Street, Louisville, Ky., died at his home in that city, on Wednesday morning, September 22nd, after several months' illness. Mr. Stickler was in his forty-sixth year, having been born on September 25, 1869. His parents and three daughters survive him.



Among the Wholesalers and Manufacturers



THE UNION BRASS MFG. CO. NOW ITS NAME.

The Empire Specialty Mfg. Co., of 224 High Avenue, Cleveland, O., has changed its name to the Union Brass Mfg. Co., and several additions have been made to its line of drinking fountains.

HARRY VERBEEK IN NEW QUARTERS.

Harry Verbeek, manufacturers' agent in Chicago, has moved his office from City Hall Square Building to the Building Material Exhibit, 175 West Jackson Boulevard, where he has secured space to display his lines. Jobbers and the trade are invited to call and see his exhibit.

FRANKLIN BRASS MFG. CO. IN NEW PLANT.

The Franklin Brass Mfg. Co., of Philadelphia, Pa., manufacturers of plumbers' brass specialties, has removed its plant from 1220 North 19th Street, where they have been established for the past two years, to 1720 Fairmount Avenue. The new place is being equipped with modern power machinery.

THE SHAWMUT CO. IN NEW QUARTERS.

The Shawmut Co., of Boston, Mass., has moved its plumbing specialty business into new quarters at 54 Canal Street, in that city. William Bunting, formerly of the firm of Bunting & Stevens and identified with the plumbing trade in Boston and New York for many years, has recently been made president of the Shawmut Co.

WOODWARD-WANGER CO. OPENS PITTSBURGH BRANCH.

The Woodward-Wanger Co., of 1106-8 Spring Garden Street, Philadelphia, Pa., has opened a branch at 9 Market Street, Pittsburgh, Pa., where a full line of the company's specialties will be carried in stock. John Cannon, who has represented the company in the Pittsburgh territory, has been made manager of the new branch.

STANDARD REGULATOR CO. TO ENLARGE PLANT.

The Standard Regulator Co., of 480 Washington Street, Newark, N. J., with offices at 90 West Street, New York City, will increase the capacity of its plant. This was made necessary by an increase in business during the past year and a half. A manufacturing space three times the present capacity of the plant will be required. The plant will be used for the manufacture of the company's temperature regulators and a new line of steam specialties which it contemplates marketing in the near future. While the site for the new plant has not been definitely decided upon, it is the company's intention to have it ready for use by January 1, 1916.

FALL MEETING OF THE NATIONAL ASSOCIATION OF BRASS MANUFACTURERS.

The fall meeting of the National Association of Brass Manufacturers, held at the Hollenden Hotel, Cleveland, O., on September 15th and 16th, was a decided success in every way, and if it lacked anything in numbers it made up for it in enthusiasm displayed and matters accomplished.

The meeting reaffirmed its position in reference to blanket orders, stamping names on goods, taking orders for shipment further than 90 days ahead and the adherence to terms of 60 days net, 2% cash in ten days. It amended its constitution, providing for a First and Second Vice-President. A poll of the meeting indicated that business is in a fairly good condition, and while the plants were not operating up to normal in all cases, a number reported they were. With the present strong metal market and copper holding at a level of about 18c and with prospects of a good fall business, prices on the finished product would, if anything, be higher than heretofore.

A prominent manufacturer, who is also a jobber, addressed the meeting, stating that generally speaking, jobbers would not look with favor upon lowering prices, for under present conditions it would not tend to stimulate or bring out business, and "cut prices" only harm the jobber, as they reduce the value of his goods on hand and drive their values to a lower level which automatically reduces the total volume of business.

After a two days' session the meeting adjourned to convene in New York December 8th and 9th, which will be the annual meeting.

McCAMBRIDGE-COOPER CO. REORGANIZED.

The McCambridge-Cooper Co., 315 North Twentieth Street, Philadelphia, Pa., has been reorganized by a party of plumbing and heating supply men of that city, who recently purchased the company for that purpose. The old name will be retained and products of the company continued on the market. John G. Fleck, of Fleck Bros. Co., is president of the new company. Harry Taylor, formerly of Haines, Jones & Cadbury Co., is vice-president; and W. M. Allen, who has been connected with the old firm for a number of years, is secretary and treasurer.

WESTERN TRADE GOLF ASSOCIATION'S FINAL TOURNAMENT FOR THIS SEASON.

On Wednesday, October 6th, the final tournament of the Western Trade Golf Association for the 1915 season will be held at the Calumet Country Club, near Burnside, Ill., just south of Chicago, and within an hour's ride from the city on the Illinois Central Railway. The final play for the annual association cup and the contest for other prizes will be among the important features of the day's play. A large and enthusiastic attendance of members of the association is anticipated at

this tournament, and players are making every preparation for a vigorous golf battle, in which energy and talent will be put forward in extraordinary style. It is expected that many of the players will travel to the club grounds by auto from the heart of the city, while a considerable number will leave on the early morning trains.

EASTERN TRADE GOLF ASSOCIATION TO MEET OCTOBER 7.

The fall meeting of the Eastern Trade Golf Association will be held at Essex County Country Club, Orange, N. J., on Thursday, October 7th. The course was secured through the courtesy of Farnam Yardley, vice-president of Jenkins Bros., New York City.

The play will consist of two rounds of the course. An eighteen hole medal play will take place in the forenoon and a foursome will be played in the afternoon. Handsome prizes have been secured for the lucky contestants. A driving contest will be decided in the morning play, and the usual program of events, including a match game against bogey, will constitute the play at the meet.

James M. Heatherton of New York has donated a silver cup which will be awarded to the player making the best morning score.

Trains for Orange leave the D. L. & W. station at New York at 8:20, 8:30 and 9:30 a. m. At Orange station taxis can be secured for transportation to the club.

PERMANENT COMMERCIAL MUSEUM AT CALCUTTA OF INTEREST TO AMERICAN MANUFACTURERS.

In view of the success which attended the sample exhibition of goods imported from Germany and Austria-Hungary and of competing Indian manufacturers recently held at Calcutta and certain other commercial centers, the Government of India has decided to establish a permanent Commercial Museum in India, writes United States Consul-General James A. Smith, from that city. The museum will be located in Calcutta and will be attached to and form part of the Department of Commercial Intelligence.

The collection of samples and exhibits will naturally take time, and the development of the museum must necessarily be gradual. It is intended that the museum should contain samples of the principal manufactures imported into India from all foreign countries with which there is any existing or prospective Indian competition, and also representative samples of the corresponding Indian manufactures. It will also contain samples of goods marketed in foreign countries which India might be in a position to supply. It is further intended to exhibit representative samples of raw materials exported to foreign countries to be reimported in manufactured form, as also of raw material which occur in India, but are not at present worked, although products manufactured from similar materials are imported in considerable quantities.

The samples exhibited will be supplemented by catalogues and price lists, which will be kept continuously up to date; by printed statistics, wherever possible, showing the extent of the various markets in India and abroad; and by other information explanatory of the details of the trade. Names and addresses of firms dealing in the various trades will be maintained in the Commercial Intelligence Department and will be available for the information of buyers and sellers. It is hoped that the museum will be a valuable addition to the resources of the Commercial Intelligence Department as a bureau of information and a means of bringing manufacturers and traders together and that it will conduce to the development of the natural resources of the country.

Pending the selection of a permanent building the museum will be temporarily located in the Commerce and Industry Department Building, No. 1, Council House Street, and arrangements are now being made to prepare the accommodation required. All the inquiries should be sent to the Director General of Commercial Intelligence at that address. The director general will welcome all applications from manufacturers for the exhibit of samples of their manufactures and all information which manufacturers or dealers may desire to communicate. It will be understood, however, that he will exercise complete discretion as to the samples which he decides should be exhibited. No heavy or bulky articles will for the present be exhibited.

B. E. Van Auken, president of the Consolidated Engineering Co., of Chicago, is at the present on an extended trip through the Southwest.

Walter Deutsch, of the Empire Brass Mfg. Co., of Cleveland, O., was a visitor to the New York trade last week, on his regular Eastern trip.

J. F. Brightman, general manager of sales of the Syracuse Faucet & Valve Co., of Syracuse, N. Y., left last week on an extended trip to western jobbing centers.

Max Durst, of the Durst Mfg. Co., of New York City, is on a business trip to Pacific Coast points. Mr. Durst evidently liked the Fair so well on his recent sojourn to California, that he has gone back to take another look.

J. D. McGuire, formerly secretary and treasurer of the Monument Plumbing Supply Co., of St. Louis, Mo., has been made president of that company, succeeding the late William Ivy.

S. Oliver Johnson, president of the Penberthy Injector Co., Detroit, Mich., has just departed on a six weeks' vacation trip through the West. He expects to visit British Columbia and California and incidentally take in the sights at the Panama-Pacific Exposition.

Chas. A. Dobie, sales manager for the McRae & Roberts Co., of Detroit, Mich., is on a flying trip through the East. Friend Dobie says he just has to make this thirty days' trip in two weeks, as there is some real good shooting awaiting him up in Northern Michigan.

David H. Murphy, formerly of the Bastian-Morley Co., of Chicago, and well known in the Middle West, is now connected with the Burlington Brass Works, of Burlington, Wis. He has been calling on jobbers in Chicago territory, introducing a new faucet manufactured by his company.

E. Willard makes his headquarters at Detroit, Mich., with offices in the Chamber of Commerce, and represents the following manufacturers in the middle west: Phillip Haas Co., of Dayton, O.; Milwaukee Brass Mfg. Co., of Milwaukee, Wis., and J. B. Wise, Inc., of Watertown, N. Y. Mr. Willard has just returned from a trip among Ohio and Pennsylvania trade and is very enthusiastic over the outlook for fall and winter business.

Arthur Crane, Continental-Jewell Filtration Co.'s diplomat, was encountered in Philadelphia last week endeavoring to close an order for a fifty million gallon per minute filtration plant. There is hardly any doubt about Arthur securing the order, for he is the only one in New York capable of supplying anything in such stupendous quantities.

E. V. Brigham, vice-president and general manager of the Enameled Tank Co., of Kalamazoo, Mich., George A. Lutz, representative for the Enameled Tank Co. and Chas. A. Miller Co., of Sturgis, Mich., were registered at the Statler Hotel, in Detroit, last week. Mr. Brigham was willing to admit that Detroit is a nice place and he always has liked it, but it is Kalamazoo against the world with Mr. Brigham.

R. T. Crane, Jr., president of the Crane Co., Chicago, met with slight injuries in an automobile accident, at Ipswich, Mass., on Monday, September 27th. Benjamin Stickney Cable, president of the United Charities of Chicago, and assistant secretary of Commerce and Labor under President Taft, who was with Mr. Crane, was killed, when the car in which they were driving was struck by another touring car on the Newburyport turnpike.

Daniel Webster's far-famed legal reputation was going to fade into obscurity like the twilight of an autumn day. It was indeed going to do that very thing, if the dreams which were brewing in a certain Hoosier boy's brains came true. Little did the busy world of affairs realize what was in store for the American bench and bar, if the Indiana lad essayed to practice law and expound Blackstone in thunderous and eloquent tones. But dreaming and doing are often diametrically opposed propositions. It's an old story, mates, yes, very ancient. Knickerbock-

G. H. Cunningham, Secretary of the Never Split Seat Co., of Evansville, Ind.

ered chaps—and we all remember the time—have always had and always will have their particular dreams of future achievement. Some were going to live luxuriously for four years in the presidential suite of the White House. Others were going to be senators from Indiana or special envoys to China or Mexico. But, strange to say, these perfectly worthy and legitimate aspirations never quite materialized. Take, for instance, the boyhood of G. H. Cunningham, a gentleman from Indiana, and secretary of the Never Split Seat Co., of Evansville, Ind.; he was going to be a lawyer of unequalled power to persuade acquittal or conviction, and he was going to do exactly what we mentioned in the opening lines of this sketch, but he didn't do it—that's all. Not because he felt that he couldn't "make good," but because he decided that the career of a woodworker was really more constructive, and perhaps more useful than that of a famed "legal pilot."

Those who haven't planned their fall fishing trip would do well to get in touch with T. A. Kempt, advertising manager for the Ireland & Matthews Mfg. Co., Detroit, Mich. Mr. Kempt has just returned from a three weeks' vacation spent at Clarkston, Mich., on Deer Lake, and as friend Kempt is a very thorough gentleman he has left nothing for our imagination, but produces real photographs of his catch.

George H. T. Scribner has been appointed special representative for the Bishop-Babcock-Becker Co., of Cleveland, O., for the states of Washington and Oregon. Mr. Scribner's many years of experience with the trade and his familiarity with this company's product, will enable him to give the trade conscientious advice concerning equipment for various requirements. He will make his headquarters at the Frye Hotel, Seattle, Wash.

There are prophets and prophets, but the baseball prophet is the wisest, bravest and most sensational of them all. Even when grim defeat sweeps madly over the diamond and hits are being carried by rapid battery methods, the real baseball prophet never loses his serene confidence in the ultimate trimuph of his favorite team. There's, for instance, L. R. Donavin, sales manager of John Brennan & Co., of Detroit, and as optimistic a ball prophet as ever adorned a grand stand. Donavin predicted while on a recent business trip in Washington, D. C., that Detroit can whip the White Sox to a standstill. Maybe he is right. If so all doubters must take off their hats to him and say he's "Done-win."

A LARGE HEATING SPECIALTY FOLDER.

The Beaton & Cadwell Mfg. Co., of New Britain, Conn., has just issued a most attractive sixteen-page folder, printed in two colors and illustrating and describing the company's products, including floor and ceiling plates, automatic air valves and heavy key valves. It also calls attention to the company's pipe hangers, water gauges, radiator foot rails or rests and expansion plates. Parties who have not received this attractive piece of trade literature can obtain it from the company on request.

SMITH'S HOT WATER SPECIALTIES.

Charles Smith Co., of Lake and Dearborn Streets, Chicago, has just issued a new catalogue entitled "Smith's Hot Water Specialties," illustrating and describing Smith's Geyser water heater and tank heater, Little Giant and Circular Giant heaters, as well as Smith's Maltese heaters. These specialties are used in furnaces to heat cold rooms with hot water or to supply hot water for domestic purposes. Parties interested in this line of specialties can secure this catalogue from the above-named company on request, mentioning "Domestic Engineering."

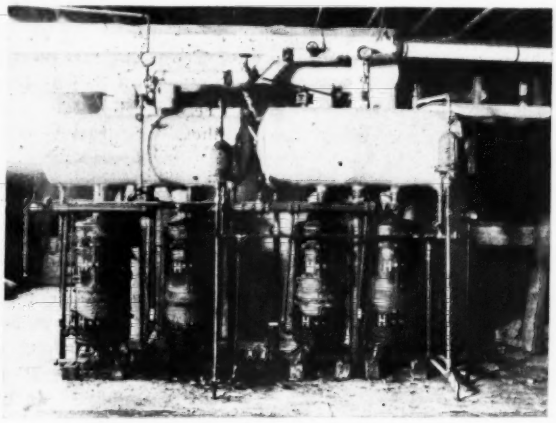
THE H. O. CANFIELD CO.'S CATALOGUE "C".

The H. O. Canfield Co., of Bridgeport, Conn., has just issued its catalogue "C", illustrating and describing plumbers' rubber supplies, including "Canfield" stoppers, bibb washers, fuller balls, waste washers, feather edge siphon washers, tank washers, tank balls, closet seat bumpers, furnace bulbs, force cups, rubber elbows, etc., etc. The catalogue consists of fifty pages, 6x9 inches, and it is gotten up in regular de luxe style. A birdseye view of

the company's plant serves as an attractive frontispiece. Interested parties who have not yet received this catalogue can obtain it from the company upon request, mentioning "Domestic Engineering."

INTERESTING HOT WATER SUPPLY INSTALLATIONS.

One of the most interesting hot water supply installations at the Panama-Pacific International Exposition is shown in the accompanying illustration. This installation consists of four No. 800 Hoffman heaters connected to steam drum and supplying the vegetable cookers, coffee urns, plate warmers, steam tables, dish washers, etc., in



The Hot Water Supply Plant in the Old Faithful Inn at the Panama-Pacific Exposition.

the Old Faithful Inn Cafe, the dining room of which has a seating capacity of 2,500 people. Nearly all the principal exposition functions are held in this dining room. The Old Faithful Inn is an exact reproduction of the inn by the same name in Yellowstone Park. The management of the inn has complimented the Hoffman Heater Co., of Lorain, O., on the satisfactory service which this plant is giving. Hoffman heaters are also used for similar service in the Alt Nurnberg Cafe, the Vienna Cafe and in the White Lunch Restaurants. They are also used in all the exposition buildings, hospitals and fire houses for furnishing hot water. The No. 800 Hoffman house heater is also installed in the Canadian Building on a hot water circulating system, supplying 700 ft. of direct hot water radiation, heating this magnificent palace.

THE NEW "OSTER" ONE-MAN DIE STOCK.

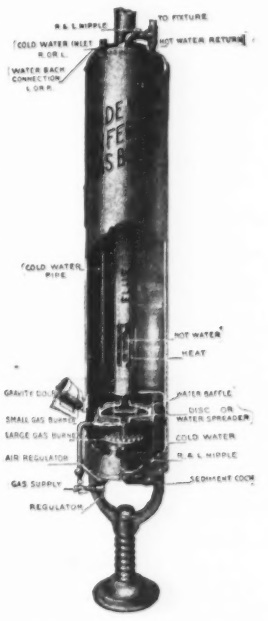
The accompanying engraving illustrates the "Oster" Matchless No. 4B ratchet stock and dies, recently placed on the market by the Oster Mfg. Co., of 2160 East Sixty-first Street, Cleveland, O. This device is designed to thread 2½ to 4-inch pipe, and the manufacturer describes its operation as follows: "The leader screw is in position to thread when the slant-post which recedes the dies is flush with the face of the die stock. The operator places the tool on the pipe, it weighs only 77 pounds, then with the small rod furnished with the tool, or with a scrap of pipe he revolves the universal scroll chuck, made of steel, until the gripping jaws are solid on the pipe. The chuck is strong enough to crush the pipe, if he has the power, and there is no chance for a slip in the grip. Now with one handle or two, as the worker may find by experience best fitting his weight and strength, he can easily turn the stock and cut the thread, and he can without difficulty turn the ratchet die stock on the thread without slipping back. All back-lashing is thus eliminated, a little pawl holds the ratchet in place, so after it is once set it is only necessary to pull on the handle until

The New "Oster" One-Man Die Stock.

the thread is done, and it gets easier as the thread gets longer." Parties who are not yet acquainted with this new tool can obtain complete information from the above named company on application, mentioning "Domestic Engineering."

THE "INFERNO" GAS BOILER.

The accompanying illustration will give the reader a pretty clear idea of the construction of the "Inferno" gas boiler, manufactured by the Inferno Gas Boiler Co., of 501 Oakdale Avenue, Chicago. This apparatus is a combination gas water heater and boiler or tank, and the manufacturer states that it is the result of years of experience in gas water heating, being very economical, heating a large amount of water with a minimum amount of gas. In this gas boiler the water is led downward from the lowest or coldest part of the storage through a pipe that passes up through the burner through the disk or spreader. The water is here forced by the baffle in the spreader to travel over the entire bottom of the spreader to the outer edges, where the heat is most intense. Being rapidly heated it is forced onward and upward to the central pipe absorbing more heat as it rises to the top of the boiler and completes the circulation. There is no obstruction to the flow of the water at any point, and no pockets where lime or sediment can form. The heat that is not absorbed directly by the water in the spreader is to a great extent absorbed by the water in the circulation pipe, the water surrounding the flue and the water on the



bottom of the boiler. Parties interested in such a water heating apparatus can obtain complete information from the above-named company upon request, mentioning "Domestic Engineering."

THE BACHMANN WATER HEATERS.

The accompanying illustrations show Model "A" and Model "B" of the "Bachmann" water heaters manufactured by Bachmann Bros., 1110 Indiana Avenue, LaPorte, Ind. These water heaters are designed for installation in furnaces and it is stated that they heat water quickly, at the

Model "A."

Model "B."

same time precluding all possibilities of scale or deposit, thus avoiding cleaning and renewing of coils. They are adaptable to all standard connections. Model "A" is constructed to be placed in the fire and Model "B" to be set over the fire. These heaters are made in different styles and sizes to meet every requirement. Interested parties can obtain complete information from the above-named firm on request, mentioning "Domestic Engineering."

Steel and Iron.

The demand for steel for war business continues large. The French Purchasing Commission is expected to award a number of large shell contracts for 1916 delivery during the next fortnight. It is estimated that fully 350,000 tons of steel will be required. Approximately 35,000 tons of basic iron is being inquired for in the Pennsylvania valley. A shortage of basic at Buffalo is sending consumers in New York State and Ohio to the valley market. The General Electric closed for a good portion of its inquiry for 32,000 tons, while the International Steam Pump Co. took 2,500 tons foundry iron for its plant at Harrison, N. J. At Chicago the recent advances in pig iron prices are now firmly established. Malleable iron is held at $15, Chicago, furnace for fourth quarter delivery and $14.50 for next year. At Birmingham the demand for steel making iron shows further expansion. The advance to $12.50 produced orders for about 15,000 tons and it is felt that considerable tonnage will be taken at $13.50, the figure recently quoted by the leading interest. Quotations are as follows:

No. 2 X Northern Foundry, New York	$16.50 to $17.00
No. 2 X Northern Foundry, Buffalo	15.50 to 16.00
No. 2 Southern Foundry, Birmingham	11.50 to 12.50
No. 2 Southern Foundry, Cincinnati	14.40 to 15.40
No. 2 Southern Ohio Coke, Cincinnati	14.00 to 14.50
No. 2 Northern Foundry, Chicago	13.75 to 14.25

Copper.

The copper market failed to improve during the past week as selling agencies and producers expected. Prices declined to 17¾ cents, although France and Italy took good tonnage, while some domestic consumers bought small lots, but efforts to force prices above 18 cents failed. The Arizona strike still continues and the loss of this production is being made much of by bull interests, but as excess production by all mines totals about 24,000,000 pounds a month the cutting of 6,000,000 pounds a month that would be turned out by the Shannon, Detroit and Arizona mines is not considered of sufficient importance, from the consumer's standpoint, to affect the market. It is estimated that stocks amounting to 60,000,000 pounds have been accumulated by the refiners during the past three months. When the exchange rate has been restored to $4.87 it is expected that England will be a large buyer again.

Tin.

Heavy arrivals of tin tended to upset the market, spot selling as low as 32¼ cents at one time during the week. Consumers show but little interest and trading in future was of very small proportions. The spot situation has depressed futures and unless the surplus stocks on hand are removed shortly, trade factors look for a continuation of the weak market. During the week tin arrivals totaled 1,045 tons, of which not more than 400 tons were moved into consuming channels. Arrivals since September 1st total 4,693 tons, and stocks afloat amount to 2,810 tons. The arrival of this tin, it is expected, will further unsettle the market.

Lead.

The lead market took on a show of activity in the latter part of last week after holding easy, and prices were advanced to 4.50 by the outside interests. Buying by domestic consumers and inquiries from Europe are stated to be factors that gave strength to the market. The situation at present is that the American Smelting & Refining Co. is expected to make an advance in its price for 50 ton lots at an early date.

Spelter.

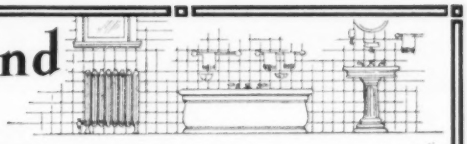
Many reports designed to force consumers to cover October requirements were issued during the week, the general tenor of them all being that there exists a shortage of spot spelter. As a result prices advanced to 14¼ cents, New York, and 14 cents, East St. Louis. However, galvanizers and brass makers have not responded to the suggestions that they cover October requirements and in some quarters it was declared that consumers had taken advantage of the recent decline to 13 cents and they are in a position to wait until new production comes into the market.

Old Metals.

New York dealers' buying prices, per 100 lb., are all nominal as follows:

Strictly crucible copper	$15.00 to $15.50
Light copper	12.75 to 13.25
Uncrucibled heavy copper	14.50 to 15.00
Uncrucibled copper wire	14.75 to 15.00
No. 1 machine composition	11.50 to 12.00
Heavy brass	9.50 to 9.75
No. 1 composition turnings	11.00 to 11.50
No. 1 brass turnings	11.25 to 11.50
No. 1 brass clippings	12.25 to 12.75
Cocks and faucets	10.00 to 10.50
Light brass	7.50 to 8.00
Solder joints	7.00 to 7.25
Heavy lead	3.60 to 3.75
Tea lead, nominal	3.25 to 3.35
Scrap zinc	9.00 to 9.50
Tin foil, pure	23.00 to 24.00
Tin pipe	30.00 to 31.00

Among the Plumbing and Heating Contractors



Illinois

Chicago and Vicinity.

Charles T. Byrne, who has a great record as a traveler, having covered the United States as well as foreign lands, has just returned from an extended trip through a number of eastern cities. On October 1st he departed for a month's trip to California. William Johnson, secretary and manager of the Kokomo Brass Works, of Kokomo, Ind., accompanied him.

A fire in which the damages were said to have aggregated several hundred dollars, recently attacked the shop and store of Robert C. Cooper of 521 South Kilburn Avenue. The loss was covered by insurance.

A master plumber's certificate was recently granted to Fred Eschenbrenner, of Bellwood, Ill., a suburb of Chicago. He has just opened up a shop in his community, and as he is a young man of brains and energy, his entry into business will be watched with interest by his friends. Within the last few weeks he was received into the ranks of the Illinois Master Plumbers' Association.

For some weeks Howard Franklin, son of George Franklin, the well-known master plumber of Ravenswood, has been confined to his home in that suburb. The young man's health has been more or less precarious for the past year.

Severing his affiliations with the Phoenix Heating and Plumbing Co., P. J. Bohan has recently launched into business for himself at 859 Diversey Parkway.

Protesting to the state and county architects, the Chicago Master Plumbers' Association has recently voiced its sentiments against the tendency of including the plumbing contract in heating specifications in county and state work. It appears that hitherto it has been the rule to award plumbing and heating contracts separately, but recently this rule has not prevailed in a number of cases. The association objects to the injection of plumbing work into heating contracts, because it is said to be limiting the awards to master plumbers who operate combination shops, heating and plumbing, thus preventing a large majority of plumbers from figuring. The county architects have promised to remedy conditions, and now the matter will be considered by the state architects.

Charles J. Herbert, one of the best known master plumbers of the "Windy City," is spending several weeks at his country cottage at Fox Lake, Ill., where he is enjoying a well-deserved vacation. During the National convention in Chicago last July Mr. Herbert was one of the busiest men around convention headquarters and his effective services as chairman of the exhibit committee were appreciated by all who attended.

There are now one hundred members of the Benefit Fund, founded by the Chicago Master Plumbers' Association, for the financial relief of the wives and families of deceased members. The Fund has made excellent progress, and its stability and permanency is assured, having passed the experimental stage. The initiation fee is $2, and the assessment is $1 on the death of each member. This method is considered an inexpensive form of insurance. D. J. Hickey is president of the Fund; F. W. Page, secretary, and E. C. Wagner, treasurer.

Thomas J. Claffy, assistant chief of the Bureau of Sanitation, Chicago, is receiving congratulations from his many friends in the trade on the arrival of a baby girl, which the stork is said to have brought last week.

At a recent meeting of the sanitary district representatives of the stockyard packing corporations, an improved drainage system for the stockyards was proposed. The packers plan to install screens in front of the sewage outlets in the yards. The purpose, they say, is to separate the solid from the liquid waste. They also propose to construct a new system of sewers in the yards at their own expense, and they ask that the screen method be given a fair trial.

Iowa

During a recent convention of stationary engineers, held at Clinton, Ia., one of the most attractive displays in the exhibit hall was that of George Kendall, known as an old timer in the local plumbing and heating business, having been identified with the trade for over forty-one years. While Mr. Kendall is one of the "old school" of the trade, he is also keenly alive to all new and progressive ideas, and nothing of constructive import escapes his attention.

Plumbing Exhibit of Geo. Kendall & Co., of Clinton, Iowa.

The heating and plumbing for a modern garage to be erected at Eighth and Pearl Streets, Sioux City, at a cost of $8,000, will be installed by Lye & Fisher, of 709 Pierce Street, Sioux City.

The Sioux City Heating & Plumbing Co., of Sioux City, has recently been awarded the plumbing and heating contracts for a two-story and basement residence to be built on Orleans Avenue in that city.

The plumbing contract for a $3,000 dwelling to be built at 609 West Riverside Avenue, Sioux City, has been awarded to V. J. Hogan, of 518 Pearl Street, in that city.

W. L. Scroggins, of Cedar Falls, will install the plumbing system in the new public school at Brandon, Iowa.

Nebraska

B. Grunwald, 1110 Farnam Street, Omaha, will install the plumbing and heating in a new high school at Schuyler, Neb. Consideration $8,000.

The heating system in the Iowa School for the Deaf at Council Bluffs will be installed by J. C. Bixby, one of the leading master plumbers of Omaha.

Daughert & Mortensen, of 1320 North Twenty-fourth Street, Omaha, will install the plumbing system in a new public school building to be erected at Hedrick, Ia.

Wisconsin

Milwaukee.

Grassler & Gezelschap, who have a wide and excellent reputation as steam heating contractors, have been awarded the contract for the installation of the steam heating system on the new $75,000 addition to the Charlie Toy Shanghai Chop Suey restaurant building, to be erected on Second Street, in Milwaukee.

C. J. Fox, of 1208 Grand Avenue, will install the plumbing on the new $25,000 mansion of Mrs. E. Schuster, one of the wealthy department store owners in Milwaukee.

Lindeman & Schumann, of 1045 Third Avenue, have secured the plumbing contract for a modern two-story residence and garage, to be built at Second and Chambers Streets, Milwaukee.

Indiana

Declares New Plumbing Ordinance is Needed in Kokomo, Ind.

In a communication to Assistant Chief Thomas J. Claffy, of the Bureau of Sanitation, Chicago, a plumber of Kokomo, Ind., whose name is withheld at Mr. Claffy's suggestion, declares that that city is badly in need of a modern plumbing ordinance, as in no small number of instances property owners are said to be their own plumbers, and that from time to time even shoemakers and tinsmiths will essay to engage in the art of plumbing. The writer declares that the use of tile pipe not only under but over the ground, for soil and waste purposes is not infrequent, and he describes amateur installations by owners of houses where tile pipe is used for soil pipe with the hubs turning down. The house owner in one instance is quoted as saying that: "The darn manufacturer made that pipe too smooth. The cement all slid off of it."

The writer further states that a trap on a lavatory is not often found, the waste pipe being "shoved" into a piece of tile pipe and the joint not even cemented.

Regarding the sanitary needs of the city of Kokomo, William J. Woolley, president of the Indiana Master Plumbers' Association, makes the following comment in a recent letter received by the editor of "Domestic Engineering": "I must admit that the conditions in Kokomo are very bad, and that the majority of the men doing plumbing there are not plumbers, in any sense of the word. Kokomo needs an ordinance and needs it badly, and anything that can be done to better conditions would be appreciated."

In the letter received by Mr. Claffy his moral support and practical suggestions for an ordinance are respectfully sought.

At the Indiana Master Plumbers' Convention in Laporte, Ind.—Mrs. Allen Weinhardt, of Terre Haute; Mrs. Wm. J. Woolley, of Evansville, and Mrs. Jos. Hayes, of Indianapolis.

At the Indiana Master Plumbers' Convention in Laporte, Ind.—On Front Seat: Mrs. Thos. Williams, of South Bend. In the Tonneau: Mrs. Walter J. Braunsdorf, of South Bend; Mrs. W. T. Keefe, of Lafayette, and Mrs. W. F. Wagner, of South Bend, Ind.

New York

New York City and Vicinity.

Baker, Smith & Co., of New York, have secured the contract for the heating installation in the new plant of the International Fuse & Powder Co., now in course of construction at Bloomfield, N. J.

M. J. Callahan Co., of New York City, has been awarded the contract for the heating of a new loft building being erected by the F. Ayer Estate on Thirty-sixth Street. Maynicke & Frank are the architects.

The heating contract for the George Backer Construction Co.'s new store and office building at Seventh Avenue and Forty-ninth Street, New York, has been awarded to Raisler Heating Co., of this city.

John R. Hopkins, of New York City, will install the plumbing in the new apartment building in course of construction at Broadway and Valentine Lane, Yonkers, N. Y.

John J. McGrath Plumbing Co., of New York, has the contracts for heating and plumbing in a new residence at Montclair, N. J.

The heating contract for the new $50,000 model tenement building to be erected on Wyckoff Avenue, Brooklyn, N. Y., has been awarded to Child & Scott Co., of New York City.

James McCullagh Co., of New York City, has the con-

tract for plumbing in the new Y. W. C. A. building at Lexington Avenue and Fifty-third Street, New York.

The contract for installing steam heating in a new $35,000 residence to be built at Pelham Manor, N. Y., has been secured by Teran, Mahaney & Munro, of New York City.

Blake & Williams, of New York City, have the contract for steam heating in the new public school building, No. 97, at Yarmouth and Shipley Streets, Brooklyn.

Walker & Chambers, of New York City, have secured the contract for steam heating work to be installed in the new administration building at Windsor, Conn. They also have the contract for installing a heating system in a new dormitory building to be erected at Bedford, Conn.

The plumbing in public school, No. 89, to be erected on Newkirk Avenue, Brooklyn, N. Y., will be installed by John W. Sands, of that city.

Fallihee & McCaul, of New York City, will install the plumbing in the new double apartment buildings to be erected at 171st Street and Fort Washington Avenue.

Ohio

Clifford T. Schlemmer.

The Hon. Clifford T. Schlemmer, father of the Ohio State Plumbing Code, and manager of the Oliver Schlemmer Co., of Cincinnati, Ohio, manufacturers of fittings for hot water heating systems, was snapped by the camera scout while in a leisurely mood on board the "Theodore Roosevelt," during the recent annual convention of the National Association of Master Plumbers at Chicago. Mr. Schlemmer, who is widely known among plumbing and heating men throughout the country, is a live and energetic figure in association circles in Cincinnati, where he has fulfilled his duties as president of the local master plumbers' association in an absolutely thorough and efficient manner.

Connecticut

Albin Johnson, of New Britain, will open a plumbing business on his own account at Chester.

The plumbing and heating for Amedeo Pion's new business block, in Taftville, near Norwich, will be installed by James Ibbison, of Norwich.

J. F. Tompkins, of Norwich, has been awarded the contract to install plumbing in a building being erected for the Government on Plum Island.

Hunt & Downs, of Westport, have been awarded two large plumbing contracts; one for the plumbing installation for a new house being erected on Sylvan Avenue for George Whiteside, of New York, and the other for similar work in the so-called "old Kreigoff Place," which has recently been purchased by H. M. Bear, of New York.

J. B. Ford, of Meriden, who recently took over the plumbing business of Ford & Dempsey, has had a number of good contracts to keep him busy. He also has secured the contract for the plumbing and steam heating installation for the new parish house being erected for the Lutheran Church on Liberty Street.

Massachusetts

George Stevens, formerly a member of the plumbing firm of Bunting & Stevens, which recently went out of business, has been appointed manager of the new Boston branch and showrooms of the Trenton Potteries Co. The showrooms are to be located on Tremont Place in the heart of the business district.

Ingalls & Kendricken, of Boston, have secured the contract for installing heating and ventilating systems in the new Dyer Building to be erected in Medford.

Henry L. Spencer, of North Adams, has been awarded the contract for plumbing Goodrich Hall, at Smith College.

The plumbing contract for the new public comfort station to be erected by the city of Lynn has been awarded to John F. Morgan & Son, Inc., of Lynn, the lowest of the several bidders.

California

San Francisco and Vicinity.

Plans have just been completed for the erection of a Class A steel and concrete residence for W. B. Bourn, at Crystal Springs Lake, south of San Francisco, at an approximate cost of $150,000. This will be one of the finest residence jobs in the neighborhood of San Francisco for a number of months. The residence will be provided with steam heat, hot water circulating system, vacuum cleaning plant, elevator service, etc.

James Hambly & Son, manufacturers representatives for the John Wood Manufacturing Co., of Conshohocken, Pa., have removed from the Pacific Building to the Hansford Building, at 268 Market Street.

Other Cities in the State.

The Latourette-Fiscal Co., of Sacramento, has been awarded the plumbing contract for the new county hospital building to be erected at Susanville, Cal., at a cost of approximately $20,000.

The Superior Court of Oakland County has ordered the Oakland City Council to reinstate J. J. Barry and Albert Cordan, plumbing inspectors, as well as W. J. Poole, assistant sanitary inspector. The three men had been deprived of office by the new city administration by the introduction of an ordinance doing away with the offices, which were under civil service rules.

Bids have been called for supplying the City of Lodi with a considerable quantity of six-inch, four-inch, ¾-inch and other pipe, and for the necessary fittings, hydrants, etc.

Gray & Hall have bought out the plumbing stock and good will of the Cash Hardware Co., from Chambers & Fanno, of Chico.

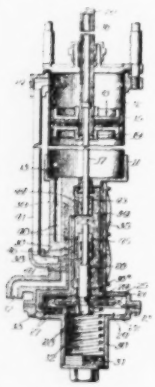
A survey is now being made for the proposed new sewer system at Carpinteria.

The Board of Supervisors of Los Angeles County has called for bids for pipe as follows: One-quarter of a mile of 14-inch, three-quarters of a mile of 12-inch, three-quarters of a mile of 8-inch, and also for the required fittings.

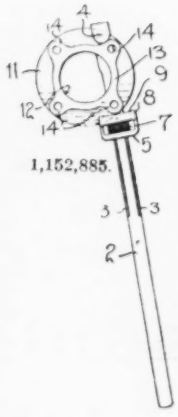
Patents

Heating Department.

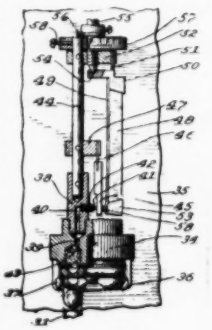
1,152,566. Water-Motor. Morton O. Snediker, Chicago, Ill., assignor to The Powers Regulator Company, Chicago, Ill., a corporation of Illinois. In a fluid motor, the combination of a cylinder and a piston, a valve casing provided with ports leading to said cylinder on both sides of said piston, a valve for controlling said ports, means for moving said valve, means for admitting fluid under service pressure to both sides of said valve actuating means and a spring also acting upon said valve actuating means and exerting the balance of power to move said valve in one direction, substantially as described.



1,152,566.



1,152,885.



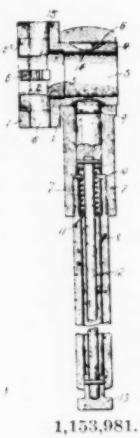
1,153,234.

1,152,885. Wrench for Flange-Unions. Clayton G. Dennis, Hastings, Nebr. A wrench for removing and applying flange unions comprising a shank rectangular in cross section and screw-threaded on its side edges, the shank at one end being bent to form a hook, the bill of the hook being relatively flat and thin and forming a fixed jaw, a movable jaw mounted upon the shank and comprising a yoke having sliding engagement with the shank, the yoke having a laterally projecting portion formed thereon opposed to the hook-shaped jaw, this laterally projecting portion being formed with outwardly divergent gripping faces extending in a direction away from the fixed jaw and with a flange defining the outer end of said gripping faces, said flange being relatively thin.

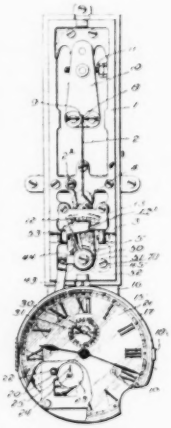
1,153,234. Humidity-Controlling Apparatus. John M. Larson, Chicago, Ill., assignor to National Regulator Company, Chicago, Ill., a Corporation of Illinois. The combination of a base, a pillar extending therefrom, said base and pillar having a passage extending therethrough and terminating in a port at the side of the pillar, a valve hung in front of said port and supported by said pillar, and a hygrostatic element consisting of a strip of metal and a strip of hygroscopic material arranged parallel with each other, said element being supported at one end from said pillar, the other end of said element bearing upon said valve and moving toward said port when said element is flexed and having movement transversely of said port when elongated.

1,153,981. Thread-Cutting Tool. William W. Vosper, Toledo, Ohio, assignor to The Toledo Pipe Threading Machine Company, Toledo, Ohio, a corporation of Ohio. In a tool of the class described, a compact die head having a central opening which is restricted adjacent to the inner end of the head to form an internal shoulder, said head also having a coaxial tubular extension at its inner end and having its outer end provided with a plurality of radially disposed recesses which extend into said shoulder, said extension being restricted in cross-section relative to the head and having peripheral teeth to form a toothed journal to rotatably carry a ratchet handle, dies mounted in said recesses and braced at their inner ends against lateral strains by the walls of the portions of the recesses disposed in said shoulder, and a collar removably secured to the outer end of the head and coacting with the dies to retain them in the recesses.

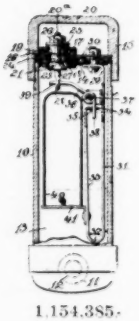
1,154,361. Thermostat. David Belden, Auburn, N. Y., assignor to Jewell Manufacturing Company, Auburn, N. Y., a corporation of New York. The combination with a thermostat provided with an adjusting mechanism for varying the operation of the thermostatic element, and a hand operated device for actuating said adjusting mechanism, of a clock mechanism operatively connected with said thermostat and provided with a time movement, and an actuating mechanism controlled thereby operative connections between said actuating mechanism and the adjusting mechanism for the thermostatic element and adjusting mechanism for varying the extent of movement of the adjusting mechanism for the thermostatic element, operatively connected with said hand operated device.



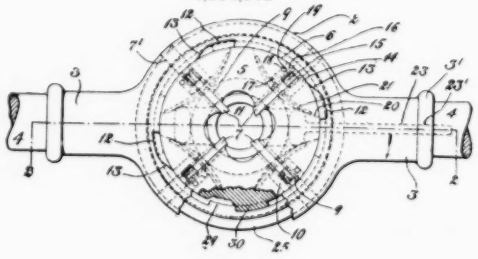
1,153,981.



1,154,361



1,154,385.

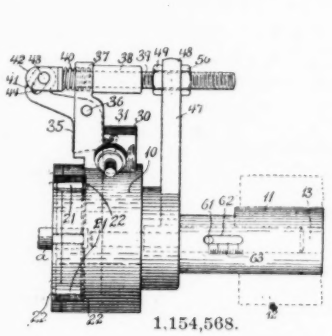


1,154,424.

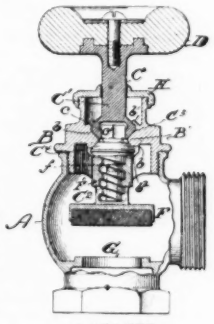
1,154,385. Pressure-Controlling Valve. Thomas W. Davis, Elizabeth, N. J. In a radiator pressure regulator, an elongated casing, a valve movable lengthwise thereof, a substantially U-shaped member of heat expansible material in said casing, supported therein at one end and having its opposite free end movable upon expansion and contraction substantially transversely of said casing, and means of connection between said valve and free end of

said member whereby movement transverse of the casing is transformed into movement in a direction substantially lengthwise thereof, substantially as set forth.

1,154,424. Die-Stock. Ernest A. Oakes, Seymour, Conn. A die-stock comprising a body, a carrier in the body having a central opening and also having chambers opening into the periphery of the carrier, plungers in said chambers, and adjusting screws threaded into said plungers, chasers abutting against the adjusting screws, extending through the carrier into the central opening thereof, the body having reliefs to receive said plungers on a predetermined movement of the carrier, said carrier being turnable in the body whereby the plungers can be moved opposite the reliefs, the body having holes to obtain access to said screws.



1,154,568.



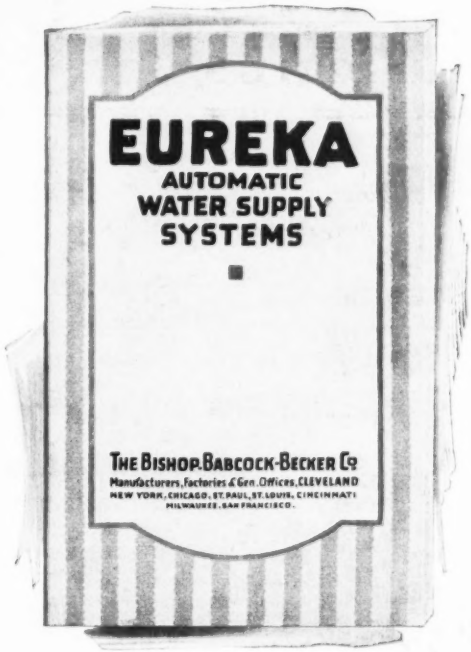
1,154,577

1,154,568. Self-Opening Die. Cornelius J. Harrington, Boston, Mass., assignor to Harrington Manufacturing Company, Boston, Mass., a corporation of Massachusetts. A self-opening die comprising a die body having a radially extended segment, chasers mounted in said die body, a cam ring having means for operating the chasers, a spring for rotating said cam ring to open the chasers, a latch carried by the cam ring exteriorly of the die body to lock the cam ring to the segment on said die body, and means for releasing the latch including a member centrally located in the die body to be engaged by the work.

1,154,577. Valve. Alfred A. Britt, Detroit, Mich. In a device of the character described, a body provided with a valve seat and an annular flange encircling the valve stem, a divided valve stem comprising upper and lower interlocking portions, the lower portion being screw threaded to engage the screw threaded shank of a valve head and provided with a flange adapted to bear against the lower face of the annular flange of the body portion, the upper portion of said valve stem having a flange adapted to bear against the upper face of the annular flange, means integral with the annular flange to hold the stem sections together, a valve head having a screw threaded shank to receive the threaded end of the valve stem, means to secure the valve shank against rotation upon the stem while admitting of its reciprocation thereon, and means for manually rotating the stem, whereby the valve may be raised or seated.

Plumbing Department.

1,153,091. Hose-Rack. William McClintock, New York, N. Y. The herein described hose rack comprising, in combination, a pair of arms arranged in the same horizontal plane, means connecting said arms at one end whereby the opposite ends are adapted to move relatively from each other, means rigidly connected to the free end of one arm and extending thence into interlocking engagement with the free end of the other arm to normally



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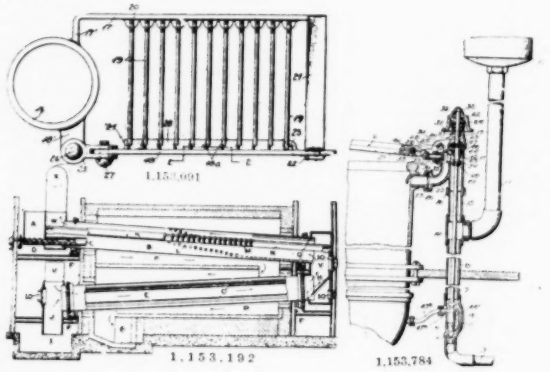
prevent such relative movement, and a series of relatively movable supporting members for the individual hose loops extending between said arms, the construction and arrangement being such that the hose may be removed from said series of supporting members loop by loop, the arms remaining parallel to each other, or the hose will instantly drop automatically in a single mass as a result of the relative movement of the arms as aforesaid.



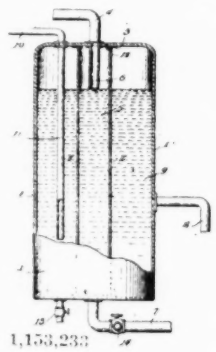
1,153,192. Apparatus for Drying Sewage-Sludge and the Like. John Bromet, Frank Thorman, and Henry Clayton Wood, Tadcaster, England. In an apparatus for drying sewage sludge or other material, the combination of a rotating cylinder or cylinders, externally and internally heated, and having a forced circulation of air through the interior, with a high temperature refuse destructor having a large fire grate, fire brick arch and linings, a closed ashpit, a fan or other means for drawing foul air from the air circuit through the drying cylinders and forcing it into the ashpit and through the fire of the furnace or into the combustion chamber, and valves for regulating the amounts of foul air forced through the fire of the furnace and discharged into the combustion chamber respectively, so as to reduce the air passing through the fire to the minimum required for combustion, thus obtaining the most intense heat possible when burning fuel of low calorific value.

1,153,784. Flushing Apparatus for Water-Closets. John Hearl, Baltimore, Md., assignor to A. Weiskittel & Son Company, Baltimore, Md., a corporation of Delaware. A flushing apparatus including in combination, a hopper, an upper valve casing connected to said hopper, a lower valve casing, a pipe connecting said valve casings, a supply valve in said lower valve casing, a stem extending through said pipes for operating said valve, a closed tank for storing the flushing water, means for raising the supply valve when the seat is depressed, a horizontally disposed valve for controlling the flushing water, a valve stem therefor, and means carried by the seat for directly engaging the last named stem for closing the valve carried thereby when the seat is depressed.

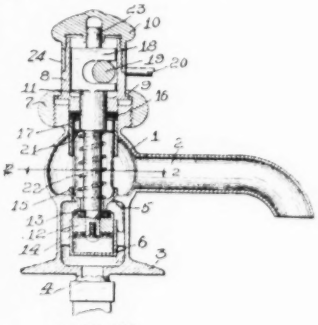
1,153,233. Hot-Water-Circulating System. William Dew Knight, Santa Monica, Cal. In a hot water circulating system, a boiler, a shell extending longitudinally throughout the length of the boiler for dividing it into a cold water compartment and a hot water compartment, the said shell having an opening formed therein at a point adjacent the boiler top, a cold water inlet pipe extending into said cold water compartment to a point below said opening, a cold water outlet pipe leading from said cold water compartment, a hot water return pipe discharging into the hot water compartment of the boiler

at a point intermediate the boiler terminals, and a hot water outlet pipe leading from the boiler and extending thereinto to a point below the point open to the hot water return pipe, as and for the purpose set forth.

1,153,370. Self-closing Cock or Faucet. Albert C. Brown, Chicago, Ill. The combination in a cock or faucet, of a chambered body, a nozzle communicating therewith, a valve seat between the inlet and nozzle, a dash pot below the seat, a valve stem longitudinally adjustable in



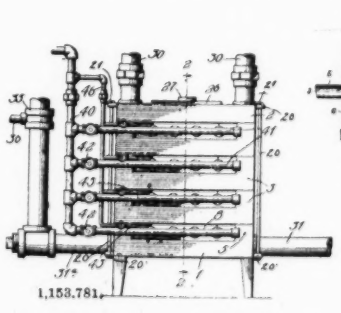
1,153,233.



1,153,370.

the body, an apertured immovable sleeve surrounding said stem and extending through and seating on said seat, a closure on said stem to engage and seat on the end of said sleeve and to extend into the dash pot, a casing into which the other end of said valve stem extends, means engaging the casing and said body, a cam shaft engaging said stem in said casing, a lever thereon for manual actuation to actuate the stem to open the valve, a spring engaging said stem and said sleeve and holding said closure normally seated, and a packing in the body bearing against the inner end of the casing and preventing leakage around the stem.

1,153,781. Water-Heater. David Hamilton, Greensburg, Pa. A water heater comprising a flat hollow water heating section, a U-shaped hollow wall formed integrally with said section, rising from the edge thereof, and communicating throughout its length therewith, said wall having its upper side closed and disposed in a horizontal plane, said closed upper side of the wall being provided with a transverse depression and with an opening communicating with its interior, an additional water heating section resting on said upper edge of the U-shaped hollow wall and having an opening registering with the opening in the upper side thereof, a burner interposed between the two sections and partially surrounded by the hollow wall, an inlet into the first section, and an outlet from the other section, the transverse depression facilitating the discharge of gases from the burner.



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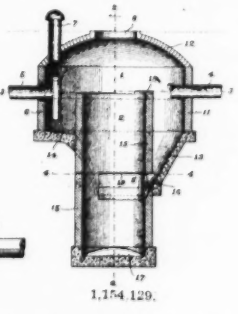

1,154,129.

1,154,129. Sewage-Disposal Apparatus. George L. Robinson and Edward L. Wagner, New York, N. Y., as-

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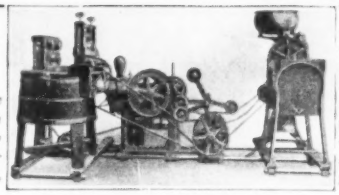

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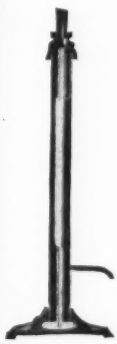

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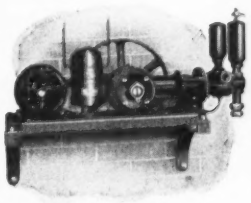

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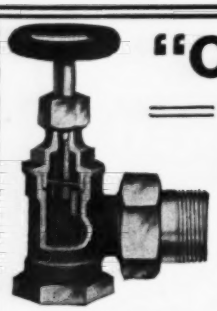

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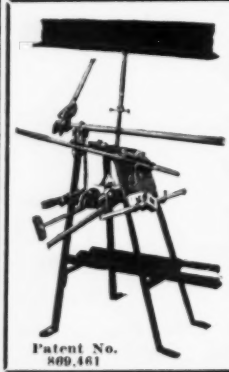

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You cannot afford to be without it, as the cost of same can be saved on the first job. Your equipment is not complete without this

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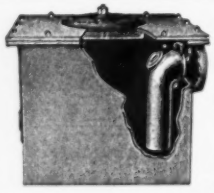

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Boston Grease Trap

say there is no other trap "just as good" on the market.

Collects and **holds** all grease from sinks in hotels, restaurants, residences, etc.

Accessibility. The Boston Trap is made with an unusually large handhole, making it easiest to clean out.

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The American No. 32 Torch

possesses many advantages over other torches. 100 per cent more heating power.

SPECIAL FEATURES

Filling lid on top. Regulating valve—Concave bottom—needle valve self-cleaning—Pump rod does not force back—Can be used in any position.

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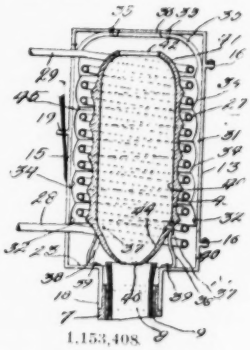
OPTIMUS MFG. CO.
Stockholm, Sweden
HENRY W. PEABODY & CO.,
17 State Street, New York
Distributors for U. S. A. and Canada

signors to the New York Sewage Disposal Company, a Corporation of New York. In a sewage disposal apparatus, the combination of a settling tank provided with an outlet at one side and an open inlet connection oppositely disposed thereto and at about the normal water level in said tank, and a sludge tank of smaller cross section located within the settling tank and having an opening through its walls connecting with the lower portion of the settling tank, the bottom wall of the settling tank adjacent said openings being inclined downwardly and inwardly to meet the wall of the sludge tank at the lower edge of said opening.

1,153,408. Heater for a Range and Coil. Henry E. Vinger, Barron, Wis. In combination with a range, a multiplicity of heaters therein, each heater comprising an oil burner casing having a wick, a heater casing consisting of two semi-cylindrical sections hinged together, said sections having semi-cylindrical contracted extensions at their lower parts to clamp against the burner casing to hold the heater casing in place, the bottom wall of the heater casing having a series of air vents, the top of the heater casing having an opening concentrically with the burner casing, a coil in the heater casing, said heater casing having an irregular passage for confining the heat to the coils.



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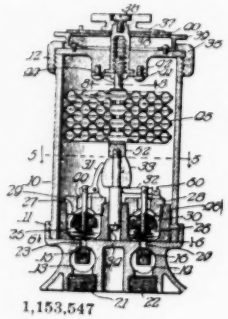
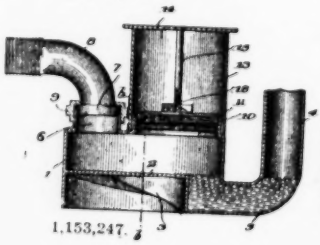
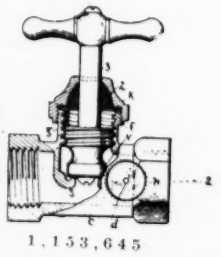


1,153,547.



1,153,247.



1,153,645.

1,153,547. Thermostatic Water-Valve. James J. Finney, Chicago, Ill., assignor of three-fourths to Roscoe L. Roberts, Chicago, Ill. In a thermostatic water device, a mixture chamber provided with inlets for hot and cold water and an outlet for a mixture of the same, a valve in each inlet, a lever provided with connections for the simultaneous opening and closing of said valves, additional valves in each inlet between the first named valves and the mixing chamber, a thermostatic device within the chamber, and connections from the thermostatic device to the last named valves for moving them simultaneously in opposite directions.

1,153,247. Trap. William H. Oldfield, Rochester, N. Y. An anti-siphon trap comprising a horizontally-elongated body having an elevated floor along one side and a sunken curved and upwardly inclined portion along the opposite side, said body having, also, an inlet at one end connecting with the low part of said sunken portion, and an

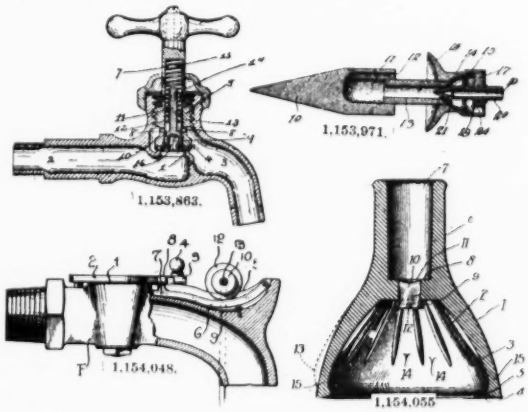
outlet at the opposite end leading from the top of the body.

1,153,645. Stop and Waste Cock. Henry F. Schroeder, Cleveland, Ohio. In stop and waste cocks, a body having a main water passage and valve seat, a valve chamber and a reciprocable valve opposite said seat, a waste nipple projecting outward from said body between one end and the transverse median line of said body and in the same plane approximately as the valve seat, and a waste valve for said waste nipple.

1,153,427. Compound for Water-Tight Joints. John M. Ferry, Baltimore, Md. The herein-described composition of matter for forming water-tight joints, consisting of sulfur thirty per cent, loam forty per cent and tar thirty per cent, substantially as described.

1,153,863. Safety-Faucet. Carl Frank, Schenectady, N. Y., assignor of one-half to Louis A. Welch, Jr., Schenectady, N. Y. A faucet having in combination a main-valve-seat surrounding a main passageway therethrough; a hollow main-valve provided with an inlet-opening through its seating end and with a lateral outlet-opening communicating with the outlet portion of said main passageway; a bushing secured within said inlet-opening in the main valve and having on its inner end a safety-valve-seat; and a spring-controlled safety-valve movable within said hollow main valve toward and from said safety-valve-seat.

1,153,971. Soldering-Iron. John Swiergocki, Chicago, Ill. In a device of the class described, a soldering tip having a socket at its inner end forming a heating chamber, the walls of said chamber being grooved to provide discharge openings for the products of combustion, a feed pipe having one end fitted in the socket and the opposite end screw-threaded, a casing screwed upon said screw-threaded end and having a peripherally flanged heat shield and an interior mixing chamber, a perforated partition at one end of said chamber having a central aperture, and a series of air inlets, a fuel supply pipe extending through the central aperture and a perforated oscillatory plate controlling the air inlets.



1,154,048. Faucet. Alonzo W. Oare, Herrick, Ill. A faucet including a projecting valve stem and having a depression in a face thereof, a disk carried by the projected portion of the valve stem and provided with a recess, a dog pivotally engaged within the depression, means for normally maintaining a portion of said dog exteriorly of the depression and within the recess of the disk, and means for forcing the disk within the depression for disengaging the dog from the disk.

1,154,055. Force-Cup. George C. Reeves, Chicago, Ill. A force cup of the class described, comprising a concave

QUATURN SHAMPOO COCKS ARE

SO MUCH BETTER THAN OLD STYLE FULLER OR COMPRESSION

BECAUSE THE QUATURN

STANDS SEVERE HOT WATER
SIMPLIFIED CONSTRUCTION AND INSTALLATION ADVANTAGES.
NO FULLER BALL - NO DOUBLE SHANK
Here is your chance to get the Business.
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The Chicago Faucet Co
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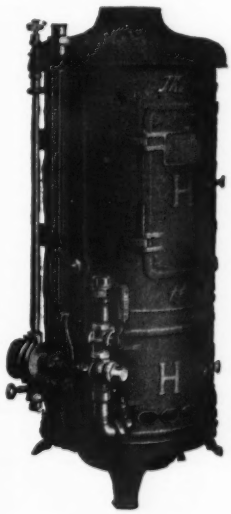
The Peer of Water Heaters

When it comes to *actual service* the Latest Improved



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Isn't this sufficient endorsement of its superiority?

Write today for particulars regarding the New and Exclusive features embodied in the "HOFFMAN."

Costs less—does more.

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fits any closet seat. Spring clamp fastener prevents baby from falling.

Most practical baby seat made

Specify the "Cadillac" and do not accept a substitute. Write for prices.

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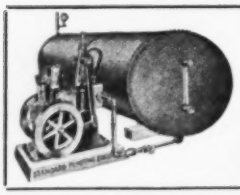

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Hand Power, Automatic Electric Power, Gas and Gasoline Power. Get our Catalogues and Prices before you buy.

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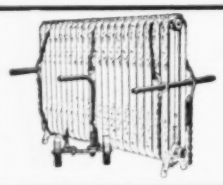

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is the steamfitter's best friend. Handiest device ever made for carrying radiators through narrow halls and difficult places. Write for details and prices.

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FULTON, N. Y.

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Over 2500 MAXCO Self-Operating Closets

now in use in Ford Automobile Plants. The **right equipment** for factories, schools, large plants, etc. Investigate now—it will pay you.

Sherwood Brass Works
1167-1175 Jefferson Ave. E., Detroit, Mich.

Service and Valve Boxes Meter Boxes
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Flush Tank Regulators

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IRON WORKS QUINCY, ILL.

A WINNING COMBINATION

Hunt's Floor Drain, Back Water Trap and Clean-Out is strong, durable and convenient. Free access to sewer. Deep water seal. Brass ball on brass seat, **never sticks.**

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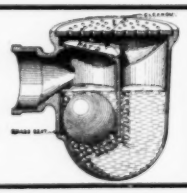
Wm. Hunt, 1512 S. GRAND AVE ST. LOUIS, MO.



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For Furnaces

Heats quickly. Precludes all possibility of scale or deposit. Saves frequent cleaning or renewing of coils. Adaptable to all standard connections. Model "A" to be set in the fire. Made in various sizes. Write for folder.

BACHMANN BROTHERS, LAPORTE, INDIANA
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The Loew Victor Pipe Machine

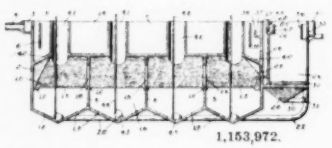
makes pipe threading easy and reduces expense to a minimum.

Investigate. Write for Catalog and details.

THE LOEW MANUFACTURING CO.
9100 Madison Ave. N. W. Cleveland, Ohio

elastic body, and a plurality of ribs extending downwardly along the inner concave surface of said body and spaced uniformly apart, said ribs being tapered toward the edge or rim of the concave body and terminating short of said rim, and that portion of the body between the ribs being thicker than the part below said ribs.

1,153,972. Apparatus for Purifying Sewage or the Like. George W. Swinburne, East Orange, N. J., assignor to Sterilization Company, a Corporation of New Jersey. The combination of a reservoir having an upper sedimentation chamber, and a lower reduction chamber communicating with each other, means for supplying sewage to the sedimentation chamber, means for discharging sludge from the reduction chamber, means for discharging effluent from each of said chambers independent of the other, and of said sludge discharge means, and means for varying the ratio between said effluent discharges from the chambers.



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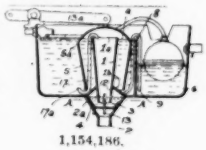

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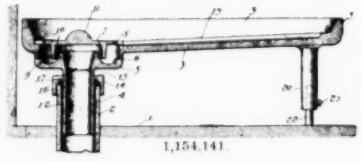

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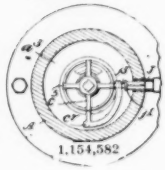

1,154,582.

1,154,186. Siphon Flushing-Cistern. James Holt, Wallasey, England. In a flushing apparatus a divided cistern, a stand pipe in the cistern, a flush pipe secured to the cistern and in communication with the stand pipe, said flush pipe having a flared extremity, a bell substantially housing the stand pipe, a trough positioned in the flared portion of the flush pipe, said trough having inclined walls adapted to engage the flared walls of the flush pipe whereby the trough is supported in the flush pipe, one end of the stand pipe extending into the trough and terminating below the water level thereof, an air pipe extending through the bottom of the trough, one end of the said air pipe terminating at a point above the water level of the trough, said pipe adapted to provide communication between the stand pipe and flush pipe, and means for moving the bell vertically causing water to flow through the flush pipe.

1,154,141. Refrigerator Drain Pan or the Like. Richard Tait, Jr., eq., Chicago, Ill., assignor to Enterprise Plumbing Supply Co., Chicago, Ill., a Corporation of Illinois. In a device of the kind described, the combination of a vertically extending drain pipe, having an exteriorly threaded portion at one end thereof, of a relatively oblong drip pan provided with a discharge pipe, said discharge pipe being of a diameter substantially less than the diameter of the drain pipe to facilitate the ready positioning of the drain pipe within the discharge pipe, a flanged clamping ring provided with an interiorly threaded portion and with a beveled face inward from the threaded portion, said ring being threaded on the exteriorly threaded end of the drain pipe and surrounding the discharge pipe, a ring of packing material arranged between said first mentioned clamping ring and its flange and the end of the drain pipe, said clamp ring being adapted to tightly compress the ring of packing material against the end of the drain pipe, and the beveled face of the clamping

ring to force the packing ring inwardly against the sides of the drain pipe, whereby a gas tight joint is formed between the pipes and a vertically sliding adjustable connection provided to support the drip pan at one end and a leg projecting from the drip pan at the opposite end and carrying an adjustable extension, whereby the pan can be vertically adjusted to any desired height.

1,154,582. Hydrant. Albert Hallowell, Lowell, Mass., assignor to William S. Lamson, Lowell, Mass.; Mary A. Lamson, executrix of said William S. Lamson, deceased. In a fire hydrant the combination with a casing of means for conducting water to said casing, an inlet valve for controlling the flow of water through said casing, said valve having ported stationary and movable members, means for limiting the movement of said movable member, a cam carried by said movable member and comprising a part eccentric thereto and a part concentric therewith, said casing having a waste passage formed therein and a valve for said passage, said valve comprising a plunger projecting within said casing, said plunger having a transverse groove thereacross with which the edge of said cam engages in such manner that the valve is held in its closed position by the concentric part of the cam when the inlet valve is open and is held in its position by the eccentric part of the cam when said inlet valve is closed.

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Life is one continuous hurdle race to the people who make a habit of jumping at conclusions.

In guarding his reputation every man should be his own watchman.

Many a shallow mind has been concealed behind a dark voice.

About the only man who can afford to believe everything he hears is the man who is stone deaf.—New York Times.

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The following is a statement of the ownership and management of "Domestic Engineering," for October 1, 1915, as required by the Postal Act of August 24, 1912:

"Domestic Engineering," published weekly at Chicago, Illinois.

Editor, Managing Editor and Business Manager, F. P. Keeney, 112 S. Michigan Avenue, Chicago.

Publisher, Domestic Engineering Company, 445-447 Plymouth Court, Chicago.

Owners: (Stockholders holding 1% or more of total amount of stock:

F. S. Kenfield, Augusta, Mich.

F. P. Keeney, 112 S. Michigan Avenue, Chicago.

O. T. Carson, 368 East 58th Street, Chicago.

W. J. Sweeney, Central Trust Bldg., Rock Island, Ill.

H. H. Rosenberg, 855 Margate Terrace, Chicago.

Amy S. Kenfield, Augusta, Mich.

E. D. Winslow, 200 Fifth Avenue, New York City.

Known bondholders, holding 1% or more of total amount of bonds, mortgages or other securities:

John K. Allen, 43 Salisbury Road, Brookline, Mass.

(Signed) F. P. Keeney,
Editor and Business Manager.

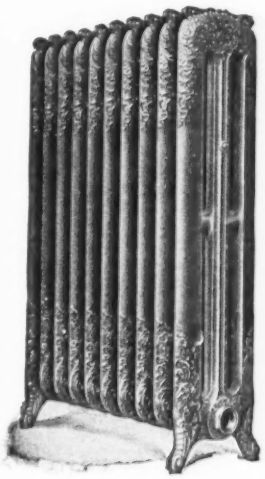
Sworn to and subscribed before me this 20th day of September, 1915.

(Seal) (Signed) Francis H. Dervoe,
Notary Public.

(My commission expires May 5, 1918.)

There's no place where Quality counts more than in radiators.

It pays to be sure before installing radiation that it will make good on the job.



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Radiators

always satisfy—never leak.

Made in all patterns for steam and water.

Plain and ornamental.

Neat, smooth, large air spaces.

Connected with malleable screw nipple.

Ask your jobber for prices.

Logansport Radiator Equipment Co.
Logansport, Indiana

Please your Clients by Installing

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More Heat—
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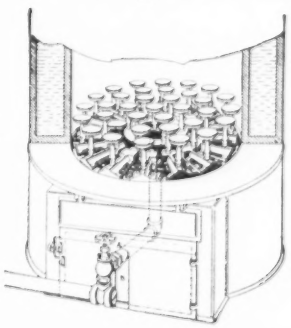

Adaptable to any make of Steam and Hot Water Heating Boilers and Hot Air Furnaces.

Also for automatic regulation of temperature.

Easily controlled by hand regulation.

"Standard" Gas-Saving Burners

give perfect service wherever used. They are business-builders for you.

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WANTED — EXPERIENCED WATER Heater Salesman with executive ability and capable of managing a branch office in a large city. An excellent opportunity for the right man. Address 2196, care "Domestic Engineering," Chicago. tf

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Makes a neater and better job than old-style hangers.
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F. E. CUDELL'S
Patent Sewer-Gas and Back Water Trap
For Wash Bowls, Sinks, Baths and Wash Tubs
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